

BOOK NO. 6

SET NO. _____

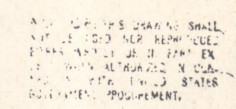
STUDY GUIDE

ORDNANCE

AMMUNITION DRAWINGS

78-0-7 TO 78-2-531

TO BE USED BY AMMUNITION INSPECTORS SCHOOL, SAVANNA ORDNANCE DEPOT



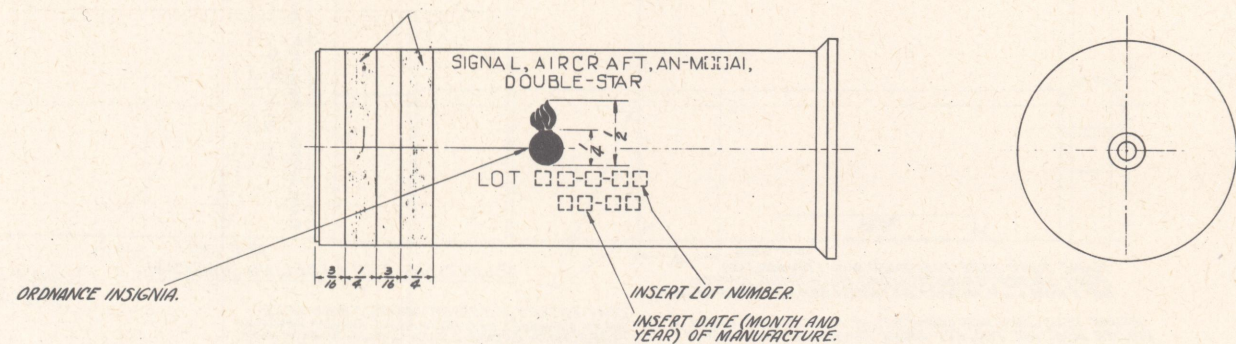
GAGE THE PARACHUTE CASE AFTER THE SEALING STRIP IS ASSEMBLED, BUT PRIOR TO ASSEMBLING OF THE COVER, USING A SLEEVE GAGE 4.4375 INCHES INTERNAL BODY DIAMETER

(d) - WEIGHT SHOWN IS WITHOUT SUSPENSION BANDS.
(e) - USE ONLY WHEN FLARE IS SUSPENDED FROM BOMB RACKS.
(f) - USE SOLDERING FLUX PASTE ON ALL SOLDER JOINTS.
(g) - ALTERNATIVE MATERIAL: 6-12 GARY LAQUER ENAMEL, SPEC JAN-1-73.
(h) - ALTERNATIVE MATERIAL: BLACK PYROX-19 LAQUER, COMMERCIAL.
(i) - ALTERNATIVE: FLAT HEAD SELF TAPPING SCREWS, 4-20 X 1/2 LONG.
(j) - ALTERNATIVE: BLENDED POLYURETHANE VARNISH, TYPE B MEDIUM BODY (35.3% MIN. STICK LAC), SPEC JAN-1-73.
(k) - NON-VOLATILE MATTER 49.8% \pm 2.4%

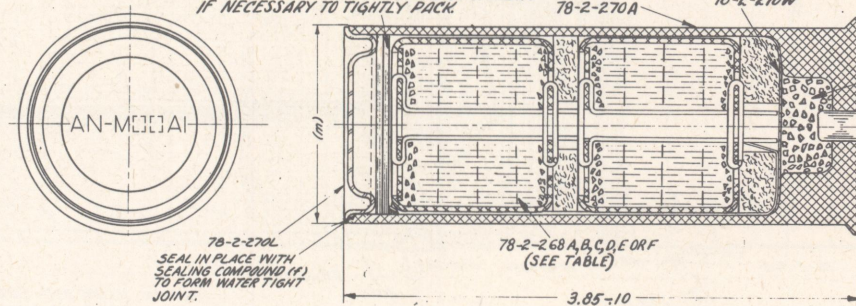
~~OBSCLETE~~ REVISION (17)

MARK PROPER COLOR BANDS WITH LUSTRELESS LACQUER ENAMEL, GRADE I, TO CORRESPOND WITH COLOR OF SIGNAL NUMBER (SEE TABLE).

(m) ASSEMBLY SHALL FREELY ENTER CHAMBER GAGE 1.5708 IN DIA. AND WHEN IN GAGE AND SEATED ON 85° SLOPE OF RIM OF CASE ALL SURFACES OF REAR FACE OF BASE SHALL EXTEND .1189 MIN., .1306 MAX. BEYOND THE 1.5708 DIA. OF GAGE.



78-2-270H USE ONE OR MORE DISC SPACERS IF NECESSARY TO TIGHTLY PACK. 78-2-270A 78-2-270W



CHARGE, PROPELLING 78-0-33 G3 36.90-4.65 GRAINS (2.35-.306 GRAMS) BLACK POWDER, GRADE A-3 OR A-3a.

LIST OF COMPONENTS, ETC.

LINE NO.	NAME OF COMPONENT	DRAWING NUMBER OR PIECE MARK	SPEC NUMBER	APPROX WEIGHT PER UNIT ASSEMBLY (OUNCES)	REMARKS
1	SIGNAL, AIRCRAFT, ASSEMBLY, AN-M37AI	78-0-33A	50-554	5.6	
2	SIGNAL, AIRCRAFT, ASSEMBLY, AN-M39AI	78-0-33B	50-554	6.8	
3	SIGNAL, AIRCRAFT, ASSEMBLY, AN-M38AI	78-0-33C	50-554	5.6	
4	SIGNAL, AIRCRAFT, ASSEMBLY, AN-M41AI	78-0-33D	50-554	6.2	
5	SIGNAL, AIRCRAFT, ASSEMBLY, AN-M40AI	78-0-33E	50-554	5.6	
6	SIGNAL, AIRCRAFT, ASSEMBLY, AN-M42AI	78-0-33F	50-554	6.2	
7	SIGNAL CASE ASSEMBLY	78-2-270A		1.6	
8	DISC, RETAINING	78-2-270W	JAN-P-157		(a)
9	CASE, SIGNAL	78-2-270B	QQ-A-411		(d)
10	CHARGE, PROPELLING	78-0-33G	JAN-P-223	.03	(a)
11	ILLUMINANT ASSEMBLY, RED-RED	78-2-268A		3.84	(a)
12	ILLUMINANT ASSEMBLY, GREEN-GREEN	78-2-268B		5.02	(a)
13	ILLUMINANT ASSEMBLY, YELLOW-YELLOW	78-2-268C		3.84	(a)
14	ILLUMINANT ASSEMBLY, RED-GREEN	78-2-268D		4.43	(a)
15	ILLUMINANT ASSEMBLY, RED-YELLOW	78-2-268E		3.84	(a)
16	ILLUMINANT ASSEMBLY, GREEN-YELLOW	78-2-268F		4.43	(a)
17	INK, STENCIL, BLACK		TT-I-558		
18	LACQUER		3-158		
19	LACQUER ENAMEL, RED, LUSTRELESS, GRADE I		JAN-L-73		
20	LACQUER ENAMEL, GREEN, LUSTRELESS, GRADE I		JAN-L-73		
21	LACQUER ENAMEL, YELLOW, LUSTRELESS, GRADE I		JAN-L-73		
22	PRIMER, PERCUSSION, NEW, NO. 4	74-2-26A	50-68-2	.04	(a)
23	TOP	78-2-270L	57-136	.03	(b)(n)(c)
24					
25					
26	PAINT, ACID-PROOF BLACK, FOR AMMUNITION		JAN-P-430		
27					
28					
29	SPACER, DISC	78-2-270H	COMMERCIAL	.03	(b)
30					
31	CASTOR OIL, U.S.P.				

(a) ONE REQUIRED.
(b) ONE OR MORE AS REQUIRED.

(f) SEALING COMPOUND:-
LACQUER, CLASS A, .60%
CASTOR OIL, U.S.P., .40%

(n) PROTECTIVE COATING- TYPE I, CLASS 1S OR RSC, SPEC 57-0-2.

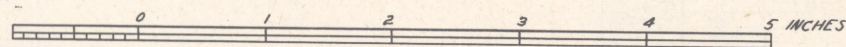
(c) ALTERNATIVE MATERIAL- TIN PLATE, TYPE II
CLASS B, GRADE 2, SPEC QQ-I-706.

ASSEMBLY (c)

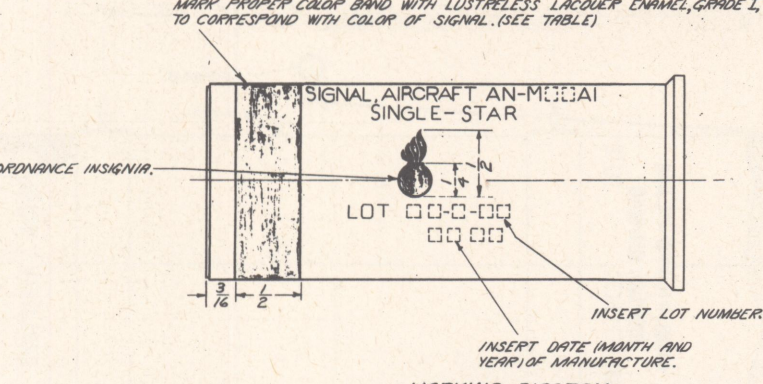
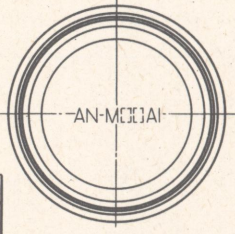
SIGNAL	COLOR	PIECE MARK	ILLUMINANT ASSEMBLY
AN-M37AI	RED-RED	78-0-33A3	78-2-268A
AN-M39AI	GREEN-GREEN	78-0-33B3	78-2-268B
AN-M38AI	YELLOW-YELLOW	78-0-33C3	78-2-268C
AN-M41AI	RED-GREEN	78-0-33D3	78-2-268D
AN-M40AI	RED-YELLOW	78-0-33E3	78-2-268E
AN-M42AI	GREEN-YELLOW	78-0-33F3	78-2-268F

THIS DRAWING IS FOR THE FOLLOWING DOUBLE STAR AIRCRAFT SIGNALS:-
RED-RED, AN-M37AI
GREEN-GREEN, AN-M39AI
YELLOW-YELLOW, AN-M38AI
RED-GREEN, AN-M41AI
RED-YELLOW, AN-M40AI
GREEN-YELLOW, AN-M42AI

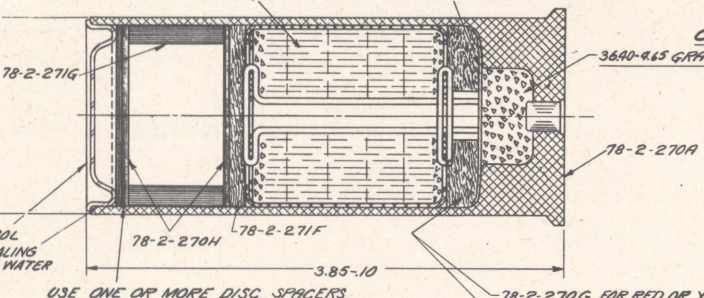
SIGNAL, AIRCRAFT, DOUBLE-STAR ASSEMBLY.			
MARCH 9, 1942		CLASS	DIVISION
REVISIONS		78	0
1	2-6-43		
2	12-19-44		
3	8-15-45		
4	2-21-49		
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED			
DECIMAL ±			
FRACTIONAL ±			
ANGULAR ±			
DRG. PERTAINS TO			
SUBMITTED:			
EXAMINED:			
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:			
for ORDN. DEPT. U.S.A.			
ORDNANCE DEPT. U.S.A.			



LIST OF COMPONENTS, ETC.					
LINE NO.	NAME OF COMPONENT	DRAWING NUMBER OR PIECEMARK	SPEC. NUMBER	APPROX. WEIGHT PER UNIT ASSEMBLY (OUNCES)	REMARKS
1	SIGNAL, AIRCRAFT, ASSEMBLY, AN-M43AI	78-0-34A	50-55-13	4.30	
2	SIGNAL, AIRCRAFT, ASSEMBLY, AN-M43AI	78-0-34B	50-55-13	5.14	
3	SIGNAL, AIRCRAFT, ASSEMBLY, AN-M44AI	78-0-34C	50-55-13	4.17	
4	SIGNAL, CASE, ASSEMBLY	78-2-270A		1.6	
5	CASTOR OIL, U.S.P.				
6	CASE, SIGNAL	78-2-270B	QQ-A-411		(A)
7	CHARGE, PROPELLING	78-0-34D	JAN-P-223	.08	(A)
8	DISC, RETAINING	78-2-270W	JAN-P-151		(A)
9	INK, STENCIL, BLACK		TT-I-550		
10	LACQUER		3-159		
11	LACQUER ENAMEL, RED, LUSTRELESS, GRADE I		JAN-L-73		
12	LACQUER ENAMEL, GREEN, LUSTRELESS, GRADE I		JAN-L-73		
13	LACQUER ENAMEL, YELLOW, LUSTRELESS, GRADE I		JAN-L-73		
14	PRIMER, NEW NO. 4	78-2-26A	50-68-2	.04	(A)
15	SPACER	78-2-271G	COMMERCIAL	.13	(A)
16	SPACER, DISC	78-2-270H	COMMERCIAL	.03	(b)
17	STAR ASSEMBLY, RED	78-2-269A		2.23	(A)
18	STAR ASSEMBLY, GREEN	78-2-269B		3.08	(A)
19	STAR ASSEMBLY, YELLOW	78-2-269C		2.10	(A)
20					
21	TOP	78-2-270L	57-136	.03	(A)(A)(7)
22					
23					
24	PAINT, ACID-PROOF BLACK, FOR AMMUNITION		JAN-P-450		
25					
26					
27	WAD, CUSHIONING	78-2-270G	8-144	.06	(A)(A)(d)
28	WAD, CUSHIONING	78-2-270X	8-144	.05	(b)(A)(C)
29	WAD, SPACER	78-2-271F	8-144	.04	(A)(A)
30					

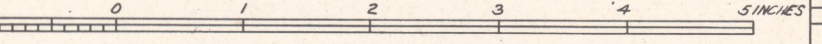


MARKING DIAGRAM
 MARK WITH BLACK STENCIL INK
 USE 10 POINT TYPE
 COAT ENTIRE EXTERIOR SURFACE INCLUDING PRIMER WITH TWO COATS OF LACQUER, CLASS 7.

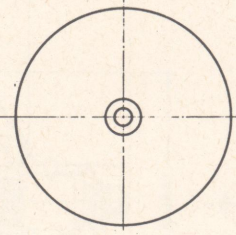


ASSEMBLY (3)			
SIGNAL	COLOR	PIECEMARK	STAR ASSEMBLY
AN-M43AI	RED	78-0-34A	78-2-269A
AN-M43AI	GREEN	78-0-34B	78-2-269B
AN-M44AI	YELLOW	78-0-34C	78-2-269C

- (A) ONE REQUIRED.
- (B) TWO OR MORE AS REQUIRED.
- (C) USED IN GREEN SIGNAL ONLY.
- (D) USED IN RED AND YELLOW SIGNAL ONLY.
- (E) MATERIAL EQUAL TO FELT, HAIR, SPEC. 8-144, TYPE II, CLASS B, MAY BE USED.
- (F) PROTECTIVE COATING: TYPE I, CLASS LS OR RSC, SPEC. 57-0-2.
- (G) ALTERNATIVE MATERIAL: TIN PLATE, TYPE II, CLASS B GRADE 2, SPEC. QQ-I-706.

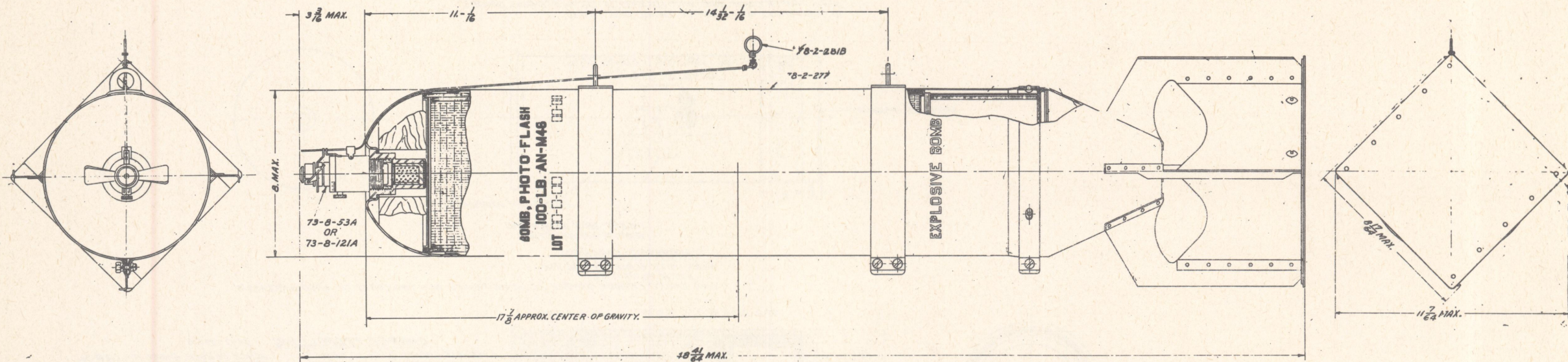


(m) ASSEMBLY SHALL FREELY ENTER CHAMBER GAGE 1.5700 IN DIA. AND WHEN IN GAGE AND SEATED ON 45° SLOPE OF RIM OF CASE ALL SURFACES OF REAR FACE OF BASE SHALL EXTEND .100 MIN., .1386 MAX. BEYOND THE 1.5700 DIA. OF GAGE.



THIS DRAWING IS FOR THE FOLLOWING ONE STAR AIRCRAFT SIGNALS:-
 RED AN-M43AI
 GREEN AN-M43AI
 YELLOW AN-M44AI

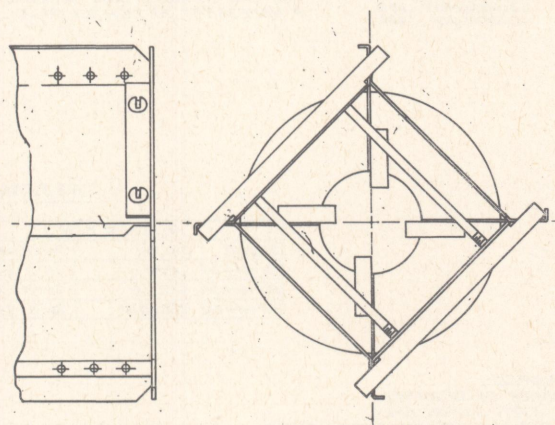
SIGNAL, AIRCRAFT, SINGLE-STAR ASSEMBLY.			
MARCH 9, 1942		CLASS	DIVISION
REVISIONS		78	0
1 2-5-43		34	
2 6-18-43			
3 12-19-44			
4 8-15-45			
5 2-21-48			
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED			
DECIMAL ±			
FRACTIONAL ±			
ANGULAR ±			
DRG. PERTAINS TO			
SUBMITTED			
EXAMINED			
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE			
ORDNANCE DEPT. U.S.A.			



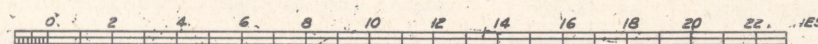
ASSEMBLY 78-0-35A6

LINE NO.	NAME OF COMPONENT	DRAWING NUMBER OR PIECEMARK	APPROX. WEIGHT (POUNDS)
1	ASSEMBLY, COMPLETE	78-0-35A	51.9
2			
3	ASSEMBLY (WITHOUT FUZE)	78-2-277	
4	ARMING WIRE ASSEMBLY	78-2-281B	.02
5			
6	FUZE, FLARE, MECHANICAL TIME, MIII, MIIIA1, OR MIIIA2, ASSEMBLY	(a) (b)	1.0
7			

(a) FOR MIII AND MIIIA1 FUZES, SEE DRAWING 73-8-53. FOR MIIIA2 FUZE, SEE DRAWING 73-8-121.
(b) ONE REQUIRED.

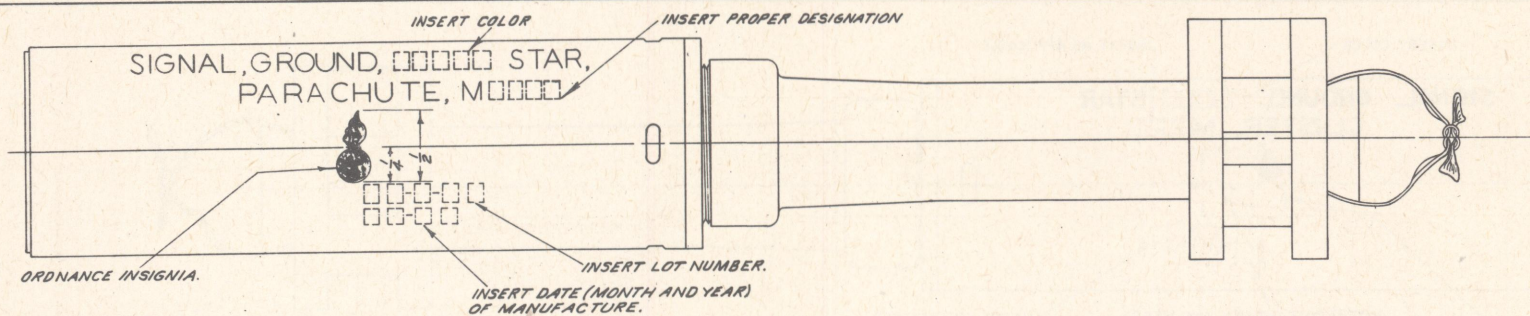


VIEW SHOWING ATTACHMENT OF TRAIL ANGLES 78-2-531A TO FIN OF BOMB TO BE USED AS REQUIRED.



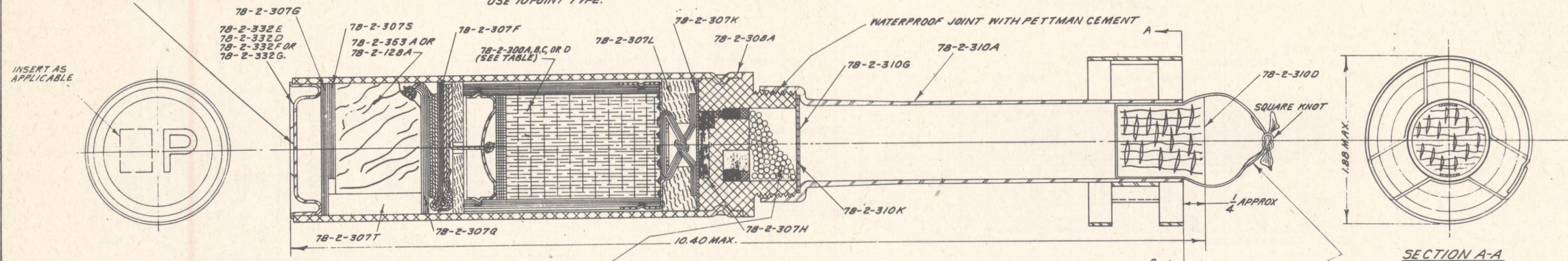
NOTICE: THIS DRAWING SHALL NOT BE USED NOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

APR. 22, 1942		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	Q	35	
1	8-31-42	6	9-29-49		
2	2-1-43				
3	7-16-43				
4	9-18-44				
5	8-15-48				
DRG. PERTAINS TO		CHECKER	CHECKER	CHECKER	CHECKER
		R.M.D.	R.J.H.	R.J.H.	R.J.H.
		J.A.F.	W.A.S.	W.A.S.	W.A.S.
SUBMITTED:		MILWAUKEE			
EXAMINED:		COL. PRO. DEPT. U.S.A.			
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:		W.A.S.			
		BRIG. GEN. PRO. DEPT. U.S.A.			
D		ORDNANCE DEPT. U. S. A.			



COAT ALL EXTERIOR SURFACES (AND INTERIOR SURFACES, IF DESIRED) (c) OF IDENTIFICATION TOP WITH LACQUER ENAMEL THE SAME COLOR AS STAR. SEAL IDENTIFICATION TOP IN POSITION WITH LACQUER ENAMEL OF SAME COLOR.

MARKING DIAGRAM
MARK WITH BLACK STENCIL INK. USE 10 POINT TYPE.



CHARGE, PROPELLING 78-0-37E6

15 GRAINS (1.5 GRAM) POWDER, SMOKELESS
NOTE: TO BE ADJUSTED TO GIVE A MIN HEIGHT OF PROJECTION OF 600 FEET.

ASSEMBLY

TYPE	PIECEMARK	ILLUMINANT ASSEMBLY	
		COLOR	PIECEMARK
M7A1	78-0-37A6	WHITE STAR	78-2-300A
M9A1	78-0-37B6	GREEN STAR	78-2-300B
M21A1	78-0-37C6	AMBER STAR	78-2-300C
MS1A1	78-0-37D6	RED STAR	78-2-300D

MAXIMUM MISALIGNMENT BETWEEN BODY AND STABILIZER TUBE, 1/16 INCH. DIP ENTIRE ASSEMBLY, EXCEPT FIN END OF STABILIZER, IN CLEAR LACQUER. FOR ALTERNATIVE ASSEMBLY AND DETAILS, SEE 78-0-109.

TAPE, PLUG 78-0-37F6
COTTON TAPE
1/4" WIDE X 7" LONG (APPROX)

NOTES: TREAT TAPE WITH ARIDEX WATER REPELLENT. IF EQUAL PORTIONS OF TAPE BETWEEN PLUG AND TUBE SHALL NOT BE TWISTED.

SUPERSEDES 78-0-37, 78-0-39, 78-0-41 AND 78-0-69 WITH CHANGE AUGUST 15, 1946.

LIST OF COMPONENTS, ETC.

LINE NO	NAME OF COMPONENT	DRAWING NUMBER OR PIECEMARK	SPEC. NUMBER	APPROX WT PER UNIT ASSEMBLY (OUNCES)	REMARKS
1	SIGNAL, GROUND, ASSEMBLY, M7A1	78-0-37A	50-54-5	16.71	
2	SIGNAL, GROUND, ASSEMBLY, M9A1	78-0-37B	50-54-5	16.36	
3	SIGNAL, GROUND, ASSEMBLY, M21A1	78-0-37C	50-54-5	15.98	
4	SIGNAL, GROUND, ASSEMBLY, MS1A1	78-0-37D	50-54-5	16.36	
5	BODY ASSEMBLY (PARACHUTE)	78-2-308A		4.60	(A)
6	ILLUMINANT ASSEMBLY (WHITE STAR)	78-2-300A		3.90	(A)
7	ILLUMINANT ASSEMBLY (GREEN STAR)	78-2-300B		3.55	(A)
8	ILLUMINANT ASSEMBLY (AMBER STAR)	78-2-300C		3.17	(A)
9	ILLUMINANT ASSEMBLY (RED STAR)	78-2-300D		3.55	(A)
10	PARACHUTE ASSEMBLY	78-2-353A OR 78-2-128A		.39	(A)
11	STABILIZER ASSEMBLY	78-2-310A		4.90	(A)
12					
13	CHARGE, PROPELLING	78-0-37E	50-12-11	.035	(C)
14	DISC	78-2-310G	COMMERCIAL	.01	(A)
15	DISC	78-2-307F	50-11-86		(A)
16	DISC, CLOSING	78-2-307G	50-11-86	.04	(A)
17	DISC, LINING	78-2-310K	JAN-P-157		(A)
18	DISC, NOTCHED	78-2-307S	50-11-86		(A)
19	DISC, PARACHUTE	78-2-307Q	50-11-86	.04	(A)
20	DISC, RETAINING	78-2-307K	COMMERCIAL		(A)
21	PELLET, POWDER	78-2-307H	JAN-P-223	.04 OR .05	(A)

22	PLUG	78-2-310D	LLL-S-731	.15	(A)
23	PROTECTOR, PARACHUTE	78-2-307T	COMMERCIAL		(A)
24	TAPE, PLUG	78-0-37F	DDO-T-86		
25	TOP IDENTIFICATION (WHITE PARACHUTE)	78-2-332E	57-136	2.0	(A)(B)
26	TOP IDENTIFICATION (GREEN PARACHUTE)	78-2-332D	57-136	2.0	(A)(B)
27	TOP IDENTIFICATION (AMBER PARACHUTE)	78-2-332F	57-136	2.0	(A)(B)
28	TOP IDENTIFICATION (RED PARACHUTE)	78-2-332G	57-136	2.0	(A)(B)
29	WAD	78-2-307L	B-144	.11	(A)(B)
30					
31	BOX, PACKING	76-16-232		17 LBS.	
32	CONTAINER, FIBER	75-14-393			
33	PACKING AND MARKING OF PACKING BOX	20-4-220			
34					
35	INK, STENCIL, BLACK		TT-T-558		
36	LACQUER, CLEAR		3-158		
37	LACQUER ENAMEL, WHITE		JAN-L-73		
38	LACQUER ENAMEL, MEDIUM GREEN (NO. 320)		JAN-L-73		
39	LACQUER ENAMEL, YELLOW (NO. 316)		JAN-L-73		
40	LACQUER ENAMEL, RED (NO. 314)		JAN-L-73		
41	PETTMAN CEMENT		JAN-C-99		
42					

THIS DRAWING APPLIES TO THE FOLLOWING SIGNALS, GROUND, PARACHUTE:

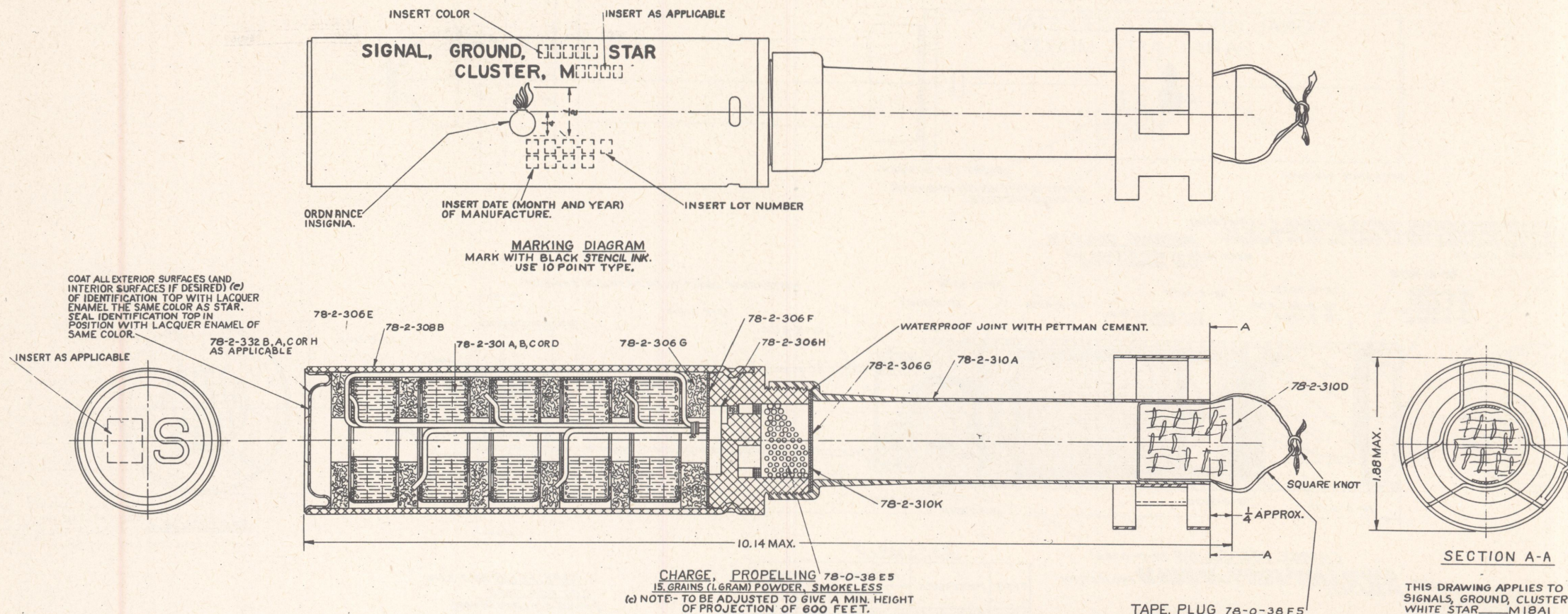
WHITE STAR ---- M7A1
GREEN STAR ---- M9A1
AMBER STAR ---- M21A1
RED STAR ---- MS1A1

- (a) ONE REQUIRED.
(b) MATERIAL EQUAL TO FELT HAIR, TYPE II, CLASS 'B', SPEC. 8-144, MAY BE USED.
(c) SEE NOTE UNDER PROPELLING CHARGE.
(d) PROTECTIVE FINISH: TYPE I, CLASS TS, TSC, RS OR RSC OR TYPE II, CLASS C, SPEC. 57-0-2. WHEN FINISH TYPE II, CLASS C IS USED, THE SALT-SPRAY TEST REQUIREMENTS OF SPEC. 57-0-2 MAY BE REDUCED TO A MIN OF 48 HOURS.
(e) BOTH EXTERIOR AND INTERIOR SURFACES MUST BE COATED WHEN TYPE II, CLASS C FINISH IS USED.

SCALE, INCHES 2/1

SIGNAL, GROUND, STAR, PARACHUTE (FOR USE WITH GRENADE LAUNCHER, M7 AND M8) ASSEMBLY.

FEBRUARY 12, 1943		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	0	37	
6	8-15-45				
7	4-7-49				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED					
DECIMALS					
FRACTIONAL					
ANGULAR					
DRG. PERTAINS TO		W.F.C.	W.F.C.		
SUBMITTED		G.I.V.H.			
EXAMINED					
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE					
COL. C. S. GORDON					
ORDNANCE DEPT. U.S.A.					



LIST OF COMPONENTS ETC.

LINE NO.	NAME OF COMPONENT.	DRAWING NUMBER OR PIECEMARK	SPEC. NUMBER	APPROX. WT. PER UNIT ASSEMBLY (OUNCES)	REMARKS
1	SIGNAL, GROUND, ASSEMBLY, M18AI	78-O-38A	50-54-6	17.49	
2	SIGNAL, GROUND, ASSEMBLY, M20AI	78-O-38B	50-54-6	17.49	
3	SIGNAL, GROUND, ASSEMBLY, M22AI	78-O-38C	50-54-6	16.96	
4	SIGNAL, GROUND, ASSEMBLY, M52AI	78-O-38D	50-54-6	17.49	
5	ILLUMINANT ASSEMBLY (WHITE STAR)	78-2-301A		5.30	
6	ILLUMINANT ASSEMBLY (GREEN STAR)	78-2-301B		5.30	
7	ILLUMINANT ASSEMBLY (AMBER STAR)	78-2-301C		4.80	
8	ILLUMINANT ASSEMBLY (RED STAR)	78-2-301D			
9	BODY ASSEMBLY (CLUSTER)	78-2-308B		4.43	(a)
10	STABILIZER ASSEMBLY	78-2-310A		4.90	(a)
11					
12	CHARGE, PROPELLING	78-O-38E	50-12-11	.035	(c)
13	DISC	78-2-310G	COMMERCIAL	.01	(a)
14	DISC, LINING	78-2-310K	JAN-P-157		(a)
15	DISC, RETAINING	78-2-306F	COMMERCIAL		(a)
16	PELLET, POWDER	78-2-306H	JAN-P-223	.04	(a)
17	PLUG	78-2-310D	LL-5-731	.15	(a)
18	TAPE, PLUG	78-O-38F	DDD-T-86		
19	TOP, IDENTIFICATION (WHITE STAR)	78-2-332B	57-136	2.00	(a) (d)
20	TOP, IDENTIFICATION (GREEN STAR)	78-2-332A	57-136	2.00	(a) (d)
21	TOP, IDENTIFICATION (AMBER STAR)	78-2-332C	57-136	2.00	(a) (d)

ASSEMBLY

TYPE	PIECEMARK	ILLUMINANT ASSEMBLY
		COLOR
M18AI	78-O-38A5	WHITE STAR
M20AI	78-O-38B5	GREEN STAR
M22AI	78-O-38C5	AMBER STAR
M52AI	78-O-38D5	RED STAR

MAXIMUM MISALIGNMENT BETWEEN BODY AND STABILIZER TUBE 1/8 INCH.
DIP ENTIRE ASSEMBLY, EXCEPT FIN END OF STABILIZER IN CLEAR LACQUER.
FOR ALTERNATIVE ASSEMBLY AND DETAILS, SEE 78-O-109.

22	TOP, IDENTIFICATION (RED STAR)	78-2-332H	57-136	2.00	(a) (d)
23	WAD	78-2-306G	8-144	.11	(a) (b)
24	WAD, CUSHIONING	78-2-306E	8-144	.03	(a) (b)
25					
26	BOX, PACKING	76-16-232		17 LBS.	
27	CONTAINER, FIBER	75-14-393			
28	PACKING AND MARKING OF PACKING BOX	20-4-220			
29					
30	INK, STENCIL, BLACK		TT-I-558		
31	LACQUER, CLEAR		3-158		
32	LACQUER ENAMEL, WHITE		JAN-L-73		
33	LACQUER ENAMEL, MEDIUM GREEN (NO. 320)		JAN-L-73		
34	LACQUER ENAMEL, YELLOW (NO. 316)		JAN-L-73		
35	LACQUER ENAMEL, RED (NO. 314)		JAN-L-73		
36	PETTMAN CEMENT		JAN-C-99		

(d) PROTECTIVE FINISH TYPE I, CLASS TS, TSC, RS OR RSC OR TYPE II, CLASS C, SPEC 57-0-2. WHEN FINISH TYPE II, CLASS C IS USED, THE SALT-SPRAY TEST REQUIREMENTS OF SPEC 57-0-2 MAY BE REDUCED TO A MIN OF 48 HOURS.

(c) BOTH EXTERIOR AND INTERIOR SURFACES MUST BE COATED WHEN TYPE II, CLASS C FINISH IS USED.

(a) ONE REQUIRED

(b) MATERIAL EQUAL TO FELT HAIR, TYPE II, CLASS "B", SPEC. 8-144 MAY BE USED.

(c) SEE NOTE UNDER PROPELLING CHARGE.

SCALE, INCHES 2

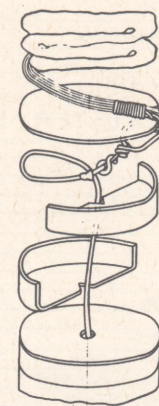
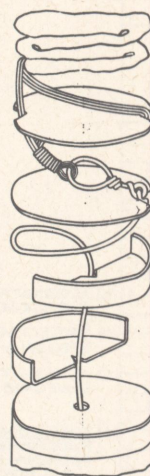
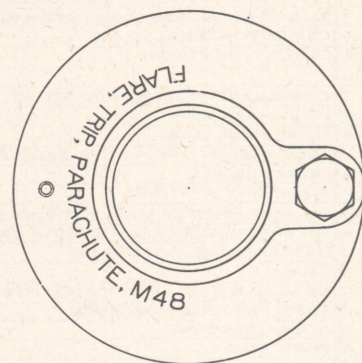
THIS DRAWING APPLIES TO THE FOLLOWING

SIGNALS, GROUND, CLUSTER:-
WHITE STAR M18AI
GREEN STAR M20AI
AMBER STAR M22AI
RED STAR M52AI

SUPERSEDES 78-O-38, 78-O-40, 78-O-42
AND 78-O-70 WITH CHANGE AUG. 15, 1945.

SIGNAL, GROUND, STAR, CLUSTER
(FOR USE WITH GRENADE LAUNCHER M7 & M8)
ASSEMBLY

FEBRUARY 12, 1943		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	0	38	
5	8-15-45				
6	4-7-49				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED					
DECIMAL 2					
FRACTIONAL 2					
ANGULAR 2					
DFTSMAN	TRACER	ENGINEER			
CHEK	MAF	HEAD ENGINEER			
CHEK	GWA	HEAD ENGINEER			
SUBMITTED					
EXAMINED					
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE.					
C. S. Reed 402					
COL. ORN. DEPT. U.S.A.					
ORDNANCE DEPT. U.S.A.					

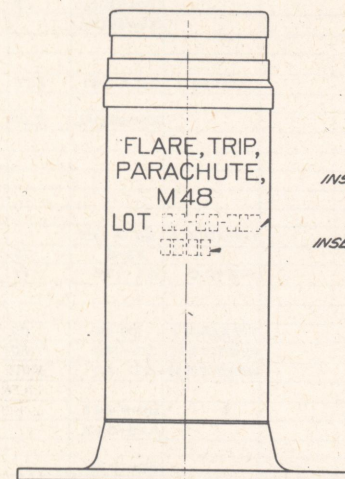
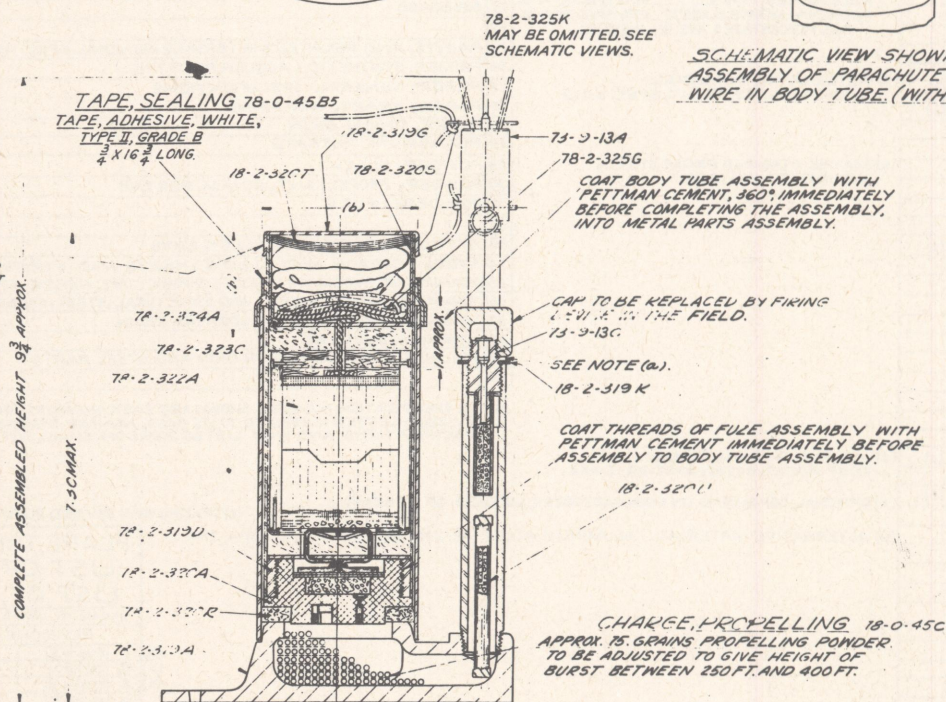


SCHEMATIC VIEW SHOWING ORDER OF ASSEMBLY OF PARACHUTE AND SUSPENSION WIRE IN BODY TUBE (WITH UPPER SEPARATOR DISC.)

SCHEMATIC VIEW SHOWING ORDER OF ASSEMBLY OF PARACHUTE AND SUSPENSION WIRE IN BODY TUBE (WITHOUT UPPER SEPARATOR DISC.)

LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	ASSEMBLY	78-0-45
2	LIST OF PARTS AND LIST OF SPEC.	78-0-45A
3	ILLUMINANT ASSEMBLY	78-2-322
4	PARACHUTE ASSEMBLY	78-2-324
5	FUSE, MINE, COMBINATION, M6A1, ASSEMBLY	73-9-13
6	DETAILS	73-9-7
7	DETAILS	78-2-319
8	DETAILS	78-2-320
9	DETAILS	78-2-323
10	DETAILS	78-2-325
11	PACKING AND MARKING OF CARTON	76-16-346
12	PACKING CARTON, ASS'Y. & DETAILS	76-16-345
13	PACKING BOX, ASS'Y. & DETAILS	76-16-347
14	PACKING AND MARKING OF BOX	20-4-371

COAT OUTER SURFACE OF BODY TUBE ASSEMBLY FOR DISTANCE OF 1 INCH FROM END WITH NITROCELLULOSE CEMENT AND ASSEMBLY TUBE COVER WHILE NET ALTERNATIVE MATERIAL PETTMAN CEMENT.



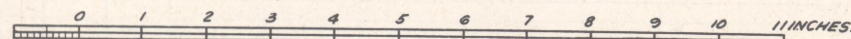
INSERT LOT NUMBER.

INSERT MONTH AND YEAR PACKED.

MARKING DIAGRAM. MARK WITH LETTERS AND FIGURES 1/4 INCH HIGH WITH BLACK MARKING INK OR STENCIL BLACK PAINT.

(X) TRACING WAS REVISED DURING LIMITED PROCUREMENT.

FLARE, TRIP, PARACHUTE, M48. ASSEMBLY AND MARKING.			
JUNE 10, 1943			
CLASS	DIVISION	DRAWING	FILE
78	0	45	
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED			
DECIMAL ±			
FRACTIONAL ±			
ANGULAR ±			
DRG. PERTAINS TO			
SUBMITTED: <i>Milbank</i>			
EXAMINED: <i>Ad Beckman</i>			
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE: <i>Sp Milling</i>			
ORDNANCE DEPT. U.S.A.			



LIST OF PARTS										
LINE NO.	NAME OF PART	NUMBER REQ'D PER COMPONENT	PIECE-MARK	SIZE OR FORM	MATERIAL	GRADE	SPEC. NUMBER	APPROXIMATE UNIT WEIGHT (OUNCES)	APPROX. GROSS WT. OF RAW STOCK PER 1000 ASSEMBLIES	REMARKS
1	ASSEMBLY		78-0-45 A				50-54-9	81.		
2	METAL PARTS ASSEMBLY		78-2-319 A					48.03		
3	BODY TUBE ASSEMBLY		78-2-319 D					10.05		(b)
4	FUZE ASSEMBLY		78-2-320 A					2.70		
5	ILLUMINANT ASSEMBLY		78-2-322 A					14.35		
6	FUZE DISC ASSEMBLY		78-2-320 L					.03		
7	FUZE, MINE, COMBINATION, M6AI, ASSEMBLY	1	73-9-13A				AXS-1118	2.90		
8	ADAPTER	1	78-2-319 F	BAR	STEEL	WDX 1314	57-107	2.35		(u) (k)
9	RELAY ASSEMBLY		78-2-320 U					.09		
10	BASE	1	78-2-319 B	CASTING	CAST IRON	CLASS 20	QQ-I-652	29.91		(a) ALTERNATIVE MATERIAL: TUBING, STEEL, TYPE I, II OR III, WD 1010 TO WD 1035, SPEC. 57-180.
11										(b) PROTECTIVE FINISH: TYPE I, CLASS RS OR TS, SPEC. 57-0-2.
12	CONTAINER	2	78-2-323 C	SHEET	BOXBOARD		50-11-79	.06		(c) ALTERNATIVE MATERIAL: ENAMEL, OLIVE DRAB, LUSTRELESS, GRADE I, SPEC. 3-67.
13	COVER, RELAY	2	78-2-320 X	SHEET	ONIONSKIN PAPER		50-11-49			
14	CHARGE	1	78-2-320 B		BLACK POWDER	A-4	50-14-1	.06		
15	CHARGE, FUZE	1	78-2-320 E		FUZE COMPOSITION			.04		(d)
16	CHARGE, IGNITING	1	78-2-320 F		BLACK POWDER	A-4	50-14-1			
17	CHARGE, RELAY	1	78-2-320 W		BLACK POWDER	A-4	50-14-1	.07		(d) FUZE COMPOSITION FUZE POWDER, TYPE I ----- 90% SPEC. 50-14-6. POTASSIUM NITRATE, CLASS "B" ----- 10% SPEC. 50-11-26. ALL PERCENTAGES ARE BY WEIGHT.
18	CHARGE, INNER	1	78-2-320 C		BLACK POWDER	A-4	50-14-1			
19	CHARGE, INTERMEDIATE	1	78-2-320 D		BLACK POWDER	A-4	50-14-1			
20	CHARGE, PROPELLING	1	78-0-45 C		PROPELLING POWDER		50-12-14	.17		
21										
22	COVER, BASE, FIRING	1	78-2-319 H	CASTING	MALLEABLE IRON		COMMERCIAL	3.16		(s)
23	COVER, TUBE	1	78-2-319 G	STRIP	STEEL	WD 1010 TO WD 1020	57-136	.83		(b)
24										
25										
26	DISC, FUZE	1	78-2-320 M	SHEET	ONION SKIN PAPER		50-11-49			(k) MAY BE STAMPED FROM STEEL, WD 1010 TO WD 1020.
27	DISC, FUZE, LOWER	1	78-2-320 N	SHEET	CHEESECLOTH		COMMERCIAL			
28	DISC, PARACHUTE	2	78-2-320 T	SHEET	CHIPBOARD		COMMERCIAL	.09		
29	DISC, SEPARATOR	1	78-2-325 G	SHEET	CHIPBOARD		COMMERCIAL	.09		
30	DISC, SEPARATOR, UPPER	1	78-2-325 K	SHEET	CHIPBOARD		COMMERCIAL			(t)
31										
32										
33	HOUSING, FUZE		78-2-320 AA	ROD	ALUMINUM - ALLOY	CONDITION "T"	QQ-A-351	2.78		
34										
35	NIPPLE	1	78-2-320 Q	EX. STRONG	STEEL PIPE, BLACK		COMMERCIAL	2.04		
36										
37										
38										
39										
40										
41	SEAL, RING	1	78-2-320 G		ALUMINUM ALLOY (AL-17)	CONDITION A	QQ-A-351			(u)
42	SPACER	1	78-2-320 R		HARD HAIR FELT		33-6	.19		(s) ALTERNATIVE MATERIAL: CAST IRON, CLASS 20, SPEC. QQ-I-652.
43	SPACER, PARACHUTE	2	78-2-320 S	STRIP	STEEL	WD 1010	57-136	1.21		(b)
44										
45										
46	TAPE, SEALING	1	78-0-45 B	ROLL	ADHESIVE TAPE, WHITE	TYPE II, GRADE B	100-39	.09		
47	TUBE	1	78-2-319 C	TUBING	STEEL (TYPE I OR II)	WD 1010 TO 1035	57-180	11.80		
48	TUBE, BODY	1	78-2-319 E	TUBING	STEEL (TYPE I, II OR III)	WD 1010 TO 1035	57-180	8.70		
49										
50	TUBE, RELAY	1	78-2-320 Z	TUBE	PAPER, KRAFT, 60 LBS.	B	UU-P-266			
51	WASHER	1	78-2-319 K	SHEET	FIBER		AXS-643			
52										
53					GREASE, SHELL		50-11-37			
54					COMPOUND, N.R.C.	"A"	50-11-10			
55					GLUE, CASEIN		C-G-456			
56					INK, BLACK MARKING		36-2			(f)
57					LACQUER ENAMEL, OLIVE DRAB LUSTRELESS	I	3-162			(c)
58					PRIMER, SYNTHETIC, LACQUER RESISTING		3-183			
59										
60					PETTMAN CEMENT		50-11-8			
61					VARNISH, PHENOL FORMALDEHYDE RESIN		3-167			
62					VARNISH, ORANGE SHELLAC	FOR BODIES	TT-V-91			
63					PASTE, FLOUR		COMMERCIAL			
64					GLUE		3-102			
65					NITROCELLULOSE CEMENT		50-11-90			
66										
67										
68										

LINE NO.	LIST OF SPECIFICATIONS	SPEC. NUMBER	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM., GENERAL SPEC. FOR	50-0-1	DRG. 78-0-45
2	ALUMINUM-ALLOY (AL-17) (ALUMINUM-COPPER-MAGNESIUM-MANGANESE); BARS, RODS, ETC.	QQ-A-351	DRG. 78-2-320
3	ALUMINUM-ALLOY (AL-24) (ALUMINUM-COPPER-MAGNESIUM (1.50%)-MANGANESE); ETC.	QQ-A-354	DRG. 78-2-320
4	CEMENT, NITROCELLULOSE	50-11-90	DRG. 78-0-45
5	CEMENT, PETTMAN	50-11-8	DRG. 78-0-45
6			
7	ENAMEL, LUSTRELESS, QUICK-DRYING	3-67	DRG. 78-0-45
8	FELT, HAIR, HARD	33-6	DRG. 78-2-320
9	FLARE, TRIP, M48	50-54-9	DRG. 78-0-45
10	GLUE, CASEIN-TYPE, WATER-RESISTANT	C-G-456	DRG. 78-2-320
11	GREASE, SHELL	50-11-37	DRG. 78-2-319
12	IRON, GRAY; CASTINGS	QQ-I-652	DRG. 78-2-319
13	INK, MARKING (FOR MARKING AMMUNITION)	36-2	DRG. 78-0-45
14	FUZE, MINE, COMBINATION, M6AI, M7AI AND TI4, LOADING, ASSEMBLING AND PACKING	AXS-1118	DRG. 78-0-45
15	LACQUER ENAMEL, LUSTRELESS	3-162	DRG. 78-0-45
16	GLUE	3-102	DRG. 78-2-320
17	METALS; GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	57-136
18	FIBRE, HARD RED VULCANIZED	AXS-643	DRG. 78-2-319
19	N. R. C. COMPOUND	50-11-10	DRG. 78-0-45
20	PAINT, STENCIL	3-179	DRG. 78-0-45
21	BOXBOARD	50-11-79	DRG. 78-2-323
22			
23	PAINTS, AND RELATED MATERIALS; GENERAL SPEC. FOR	3-1	3-162
24	PRIMER, SYNTHETIC, LACQUER RESISTING	3-183	DRG. 78-2-319
25	PAPER, GENERAL SPECIFICATIONS	UU-P-261	UU-P-266
26	PAPER, KRAFT, WRAPPING	UU-P-266	DRG. 78-2-320
27	PAPER, ONION SKIN	50-11-49	DRG. 78-2-320
28	POTASSIUM NITRATE	50-11-26	DRG. 78-2-320
29	POWDER, BLACK	50-14-1	DRG. 78-2-320
30	POWDER, PROPELLANT, 60MM. MORTAR	50-12-14	DRG. 78-0-45
31	POWDERS, FUZE	50-14-6	DRG. 78-2-320
32			
33	STEEL, CARBON AND ALLOY, BARS	57-107	DRG. 78-2-319
34	STEEL, CARBON AND ALLOY, SHEETS AND STRIPS	57-136	DRG. 78-2-319
35	PACKAGING AND PACKING FOR OVERSEAS SHIPMENT; TAPE, ADHESIVE, ETC.	100-39	DRG. 78-0-45
36	TUBING, ROUND, MECHANICAL AND STRUCTURAL; STEEL, CARBON, ETC.	57-180	DRG. 78-2-319
37	VARNISH, PHENOL FORMALDEHYDE RESIN	3-167	DRG. 78-2-320
38	VARNISH, SHELLAC	TT-V-91	DRG. 78-2-320
39	FINISHES, PROTECTIVE, FOR IRON AND STEEL PARTS	57-0-2	DRG. 78-2-319
40			

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

(x) TRACING WAS REVISED DURING LIMITED PROCUREMENT.

FLARE, TRIP, PARACHUTE, M48. LIST OF PARTS AND LIST OF SPECIFICATIONS.					
JUNE 10, 1943		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	O	45A	
(X) 1	8-16-43				
(X) 2	9-23-43				
(X) 3	10-20-43				
4	12-7-43				
5	8-15-45				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED					
DECIMALS					
FRACTIONAL					
ANGULAR					
DRG. PERTAINS TO					
78-0-45					
SUBMITTED					
E.H.F. E.M.S. J.M.P. SAG G.B. CHIEF OFFICER					
EXAMINED					
H. J. Sachman					
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE					
H. C. Maltby					
COL, 1ST INF DIV					
D					
ORDNANCE DEPT. U.S.A.					

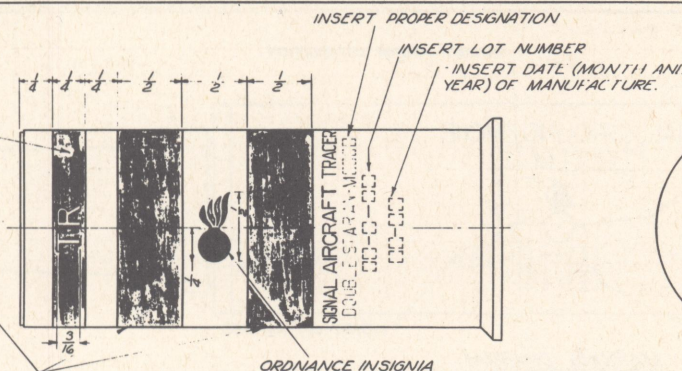
LIST OF COMPONENTS, ETC					
LINE NO.	NAME OF COMPONENT	DRAWING NUMBER OR PIECE MARK	SPEC NUMBER	APPROX WEIGHT PER UNIT ASSEMBLY (OUNCES)	REMARKS
1	SIGNAL AIRCRAFT, ASSEMBLY YT-RY	78-0-64A	50-55-20	5.00	
2	SIGNAL AIRCRAFT, ASSEMBLY GT-RR	78-0-64B	50-55-20	5.00	
3	SIGNAL AIRCRAFT, ASSEMBLY GT-GR	78-0-64C	50-55-20	5.00	
4	SIGNAL AIRCRAFT, ASSEMBLY RT-GG	78-0-64D	50-55-20	5.00	
5	SIGNAL AIRCRAFT, ASSEMBLY RT-RR	78-0-64E	50-55-20	5.00	
6	SIGNAL AIRCRAFT, ASSEMBLY RT-GR	78-0-64F	50-55-20	5.00	
7					
8	SIGNAL CASE ASSEMBLY	78-2-270A		1.57	
9					
10					
11	ILLUMINANT AND TRACER ASSEMBLY YT-RY	78-2-349A		2.21	(a)
12	ILLUMINANT AND TRACER ASSEMBLY GT-RR	78-2-349B		2.39	(a)
13	ILLUMINANT AND TRACER ASSEMBLY GT-GR	78-2-349C		2.46	(a)
14	ILLUMINANT AND TRACER ASSEMBLY RT-GG	78-2-349D		2.43	(a)
15	ILLUMINANT AND TRACER ASSEMBLY RT-RR	78-2-349E		2.29	(a)
16	ILLUMINANT AND TRACER ASSEMBLY RT-GR	78-2-349F		2.36	(a)
17					
18					
19					
20	BOX PACKING	76-16-364			
21					
22	CASE, SIGNAL	78-2-270B	QQ-A-411		(a)
23	CASTOR OIL, GRADE I	JU-0-318			
24	CHARGE, PROPELLING	78-0-64G	JAN-P-223	.08	(a)
25					
26	DISC, RETAINING	78-2-270W	JAN-P-157	.01	(a)
27	DISC, SPACER	78-2-270T	50-11-86	.03	(b)
28					
29	INK, STENCIL, BLACK	TT-1-558			
30					
31	LACQUER, CLASS A		3-158		
32	LACQUER ENAMEL, RED GRADE I		JAN-L-73		
33	LACQUER ENAMEL, MEDIUM GREEN GRADE I		JAN-L-73		
34	LACQUER ENAMEL, YELLOW GRADE I		JAN-L-73		
35					
36	PACKING AND MARKING OF PACKING BOX	20-4-397			
37	PAINT, ACID-PROOF, BLACK (FOR AMMUNITION)		JAN-P-450		
38	PRIMER, NEW, NO. 4	74-2-26A	50-68-2	.04	(a)
39	SEALING COMPOUND				(a)
40	TOP	78-2-270L	57-136	.03	(a) (h) (p)
41					
42	WAD, CUSHIONING	78-2-270X	8-144	.03	(a) (q)
43					
44					
45					

NOTES:-

- (a) ONE REQUIRED.
 (b) ONE OR MORE AS REQUIRED.
 (c) MATERIAL EQUAL TO TYPE II, CLASS B, HAIR FELT. SPEC 8-144 MAY BE USED.
 (d) PROTECTIVE FINISH: TYPE I, CLASS LS OR RSC, SPEC 57-0-2.
 (h) SEALING COMPOUND:
 LACQUER, CLASS A, 60% SPEC 3-158
 CASTOR OIL, GRADE I, 40% SPEC JUJ-0-318
 (i) SEE REQUIREMENTS ON DWG 78-2-270 FOR SIGNAL CASE ASSEMBLY.
 (p) ALTERNATIVE MATERIAL: TIN PLATE, TYPE II, CLASS B, GRADE 2, SPEC QQ-I-706.

MARK PROPER COLOR BANDS WITH LACQUER ENAMEL, GRADE I, TO CORRESPOND WITH COLOR OF SIGNAL DESIGNATION. (SEE TABLE)

TRACER STARS

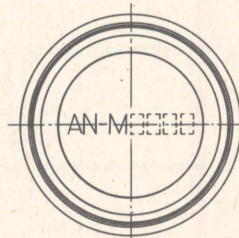


MARKING DIAGRAM

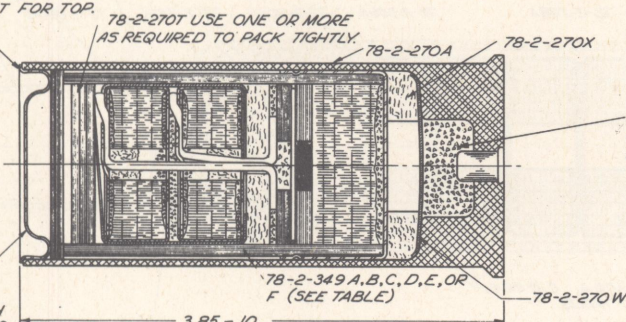
MARK WITH BLACK STENCIL INK
 USE 10 POINT TYPE.

COAT ENTIRE EXTERIOR SURFACE, INCLUDING PRIMER, WITH TWO COATS OF LACQUER, CLASS A.

IF NECESSARY, RESIZE END OF CARTRIDGE CASE TO PROVIDE A LIGHT PRESS FIT FOR TOP.



78-2-270L
 SEAL IN PLACE WITH SEALING COMPOUND TO FORM WATERTIGHT JOINT.



CHARGE, PROPELLING 78-0-64G
 33 - 2 GRAINS (2.14 - 12 GRAMS) BLACK POWDER, GRADE A-3 OR A-3G.

THIS DRAWING IS FOR THE FOLLOWING AIRCRAFT SIGNALS:-

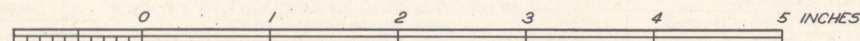
YT - RY - AN-M53A1
 GT - RR - AN-M54A1
 GT - GR - AN-M55A1
 RT - GG - AN-M56A1
 RT - RR - AN-M57A1
 RT - GR - AN-M58A1

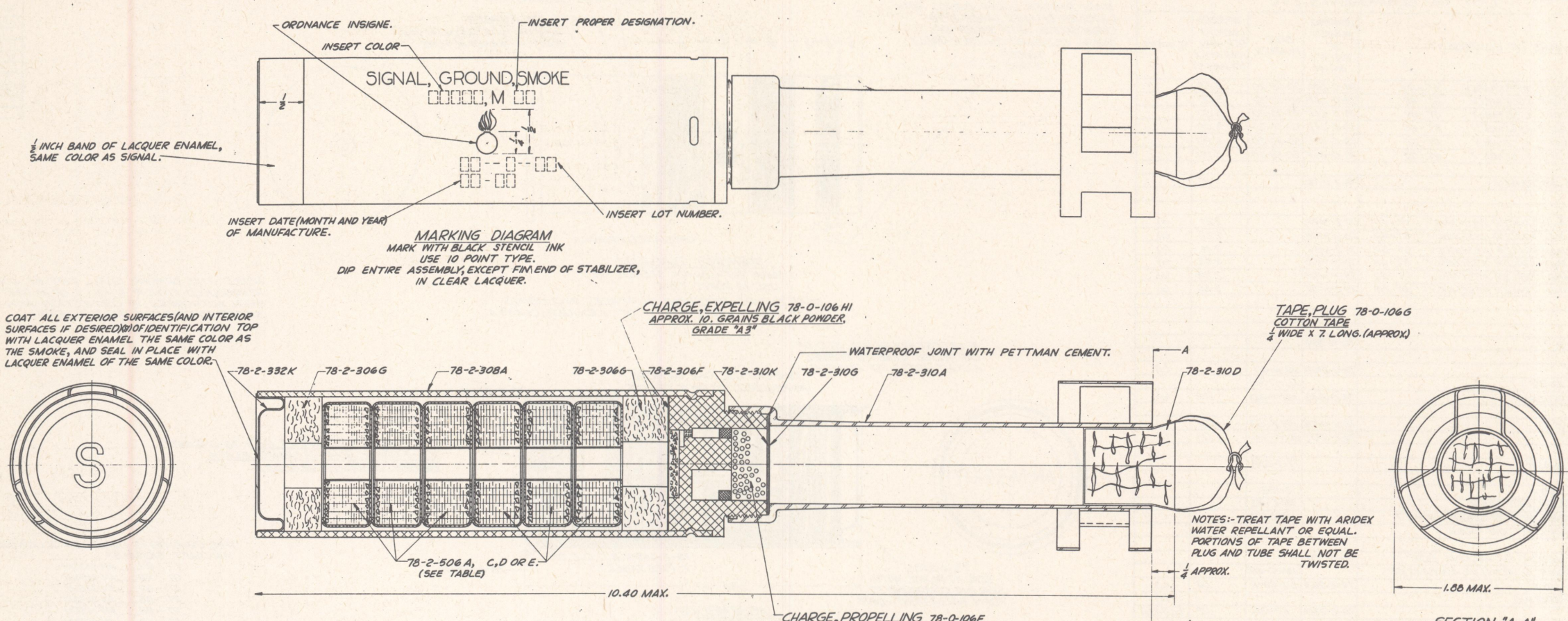
ASSEMBLY (c)			
PIECE MARK	DESIGNATION	ILLUMINANT AND TRACER ASSEMBLY	PIECE MARK ILLUMINANT COLORS TRACER COLOR
78-0-64AB	AN-M53A1	78-2-349A	RED-YELLOW YELLOW
78-0-64BB	AN-M54A1	78-2-349B	RED-RED GREEN
78-0-64CB	AN-M55A1	78-2-349C	GREEN-RED GREEN
78-0-64DB	AN-M56A1	78-2-349D	GREEN-GREEN RED
78-0-64EB	AN-M57A1	78-2-349E	RED-RED RED
78-0-64FB	AN-M58A1	78-2-349F	GREEN-RED RED

SIGNAL, AIRCRAFT, TRACER, DOUBLE, STAR, ASSEMBLY.

MAY 24, 1943	CLASS	DIVISION	DRAWING	FILE
REVISIONS	78	0	64	
7 10-1-45				
8 11-3-48				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED				
DECIMAL ±				
FRACTIONAL ±				
ANGULAR ±				
DRG. PERTAINS TO	JSS	FCB	NR	ENGINEER
CHECKER	ACJ			ENGINEER
SUBMITTED:				
EXAMINED:				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:				
ORDNANCE DEPT., U.S.A.				

SUPERSEDES 78-0-64 WITHOUT CHANGE NOVEMBER 3, 1948





LIST OF COMPONENTS					
LINE NO.	NAME OF COMPONENT	DRAWING NUMBER OR PIECEMARK	SPEC. NUMBER	APPROX. WT. PER UNIT, ASSEMBLY (OUNCES)	REMARKS
1	SIGNAL, GROUND, RED SMOKE, ASSEMBLY	78-0-106 A	50-54-16	14.5	M62
2					
3	SIGNAL, GROUND, YELLOW SMOKE, ASSEMBLY	78-0-106 C	50-54-16	14.5	M64
4	SIGNAL, GROUND, GREEN SMOKE, ASSEMBLY	78-0-106 D	50-54-16	14.5	M65
5	SIGNAL, GROUND, VIOLET SMOKE, ASSEMBLY	78-0-106 E	50-54-16	14.5	M66
6	BODY ASSEMBLY	78-2-308 A		4.60	(a)
7	SMOKE PELLET ASSEMBLY, RED	78-2-506 A		0.7	(b)
8					
9	SMOKE PELLET ASSEMBLY, YELLOW	78-2-506 C		0.7	(b)
10	SMOKE PELLET ASSEMBLY, GREEN	78-2-506 D		0.7	(b)
11	SMOKE PELLET ASSEMBLY, VIOLET	78-2-506 E		0.7	(b)
12	STABILIZER ASSEMBLY	78-2-310 A		4.90	(a)
13					
14	CHARGE, EXPELLING	78-0-106 H	JAN-P-223	0.02	
15	CHARGE, PROPELLING	78-0-106 F	50-12-14	0.05	(c)
16	DISC	78-2-310 G	COMMERCIAL	0.01	(a)
17	DISC, LINING	78-2-310 K	JAN-P-157		(a)
18	DISC, RETAINING	78-2-306 F	COMMERCIAL		(a)
19	PLUG	78-2-310 D	LLL-5-731	0.15	(a)
20	TAPE, PLUG	78-0-106 G	DDD-T-86		(a)
21	TOP IDENTIFICATION	78-2-332 K	57-136	0.20	(a)(f)
22	WAD	78-2-306 G	8-144	0.11	(d)(e)

ASSEMBLY			
TYPE	PIECEMARK	SMOKE PELLET COLOR	PIECEMARK
M62	78-0-106 A2	RED	78-2-506 A
M64	78-0-106 C2	YELLOW	78-2-506 C
M65	78-0-106 D2	GREEN	78-2-506 D
M66	78-0-106 E2	VIOLET	78-2-506 E

MAXIMUM MISALIGNMENT BETWEEN BODY AND STABILIZER TUBE, 1/16 INCH.

23	BOX, PACKING	76-16-232	17 LBS.
24	CONTAINER, FIBER, M 104	76-1-497	
25	PACKING AND MARKING OF BOX	20-4-220	
26	INK, STENCIL		
27	LACQUER ENAMEL, LUSTRELESS		
28	PETTMAN CEMENT		
29	LACQUER, CLEAR		
30	PACKING AND MARKING OF FIBER CONTAINER	75-14-393	
31			

(a) ONE REQUIRED.
 (b) SIX REQUIRED.
 (c) SEE NOTE UNDER CHARGE, PROPELLING.
 (d) TWO REQUIRED.
 (e) MATERIAL EQUAL TO FELT, HAIR, TYPE II, CLASS "B" SPEC. 8-144, MAY BE USED.

(F) PROTECTIVE FINISH TYPE I, CLASS TS, TSC, RS OR RSC OR TYPE II, CLASS C, SPEC 57-0-2. WHEN FINISH TYPE II, CLASS C IS USED, THE SALT-SPRAY TEST REQUIREMENTS OF SPEC 57-0-2 MAY BE REDUCED TO A MIN OF 48 HOURS.

(G) BOTH EXTERIOR AND INTERIOR SURFACES MUST BE COATED WHEN TYPE II, CLASS C FINISH IS USED.

THIS DRAWING APPLIES TO THE FOLLOWING SIGNALS, GROUND:-

RED SMOKE-----M62
 YELLOW SMOKE-----M64
 GREEN SMOKE-----M65
 VIOLET SMOKE-----M66

CLASSIFICATION CHANGED TO UNCLASSIFIED BY AUTHORITY OF OCM 29729 CAPT. Thomas J. H. [illegible] JAN 10, 1948

SIGNAL, GROUND, SMOKE.
 (FOR USE WITH GRENADE LAUNCHERS, M7 & M8) ASSEMBLY.

MAY 10, 1945

REVISIONS	CLASS	DIVISION	DRAWING	FILE
1 8-15-45	78	0	106	
2 1-10-48				
3 4-7-49				

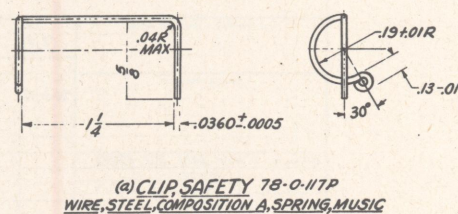
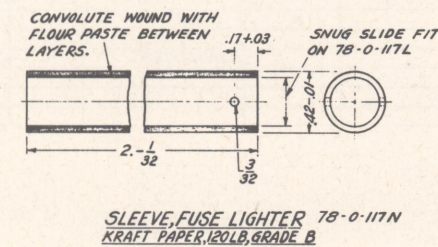
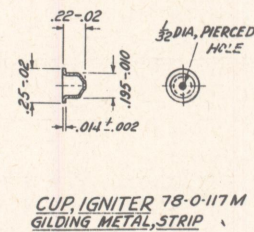
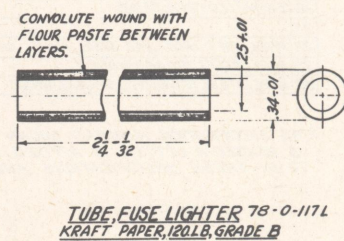
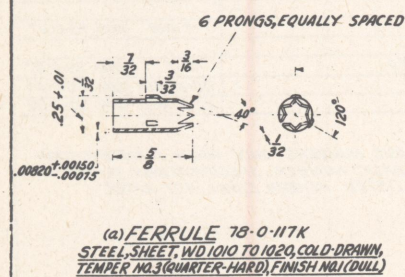
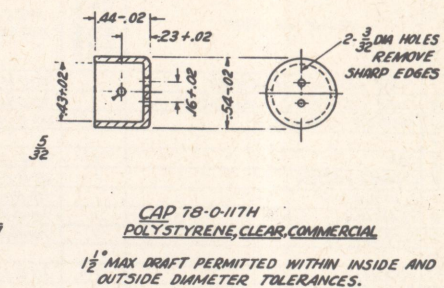
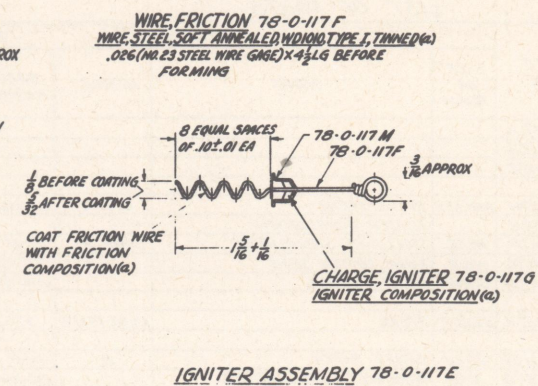
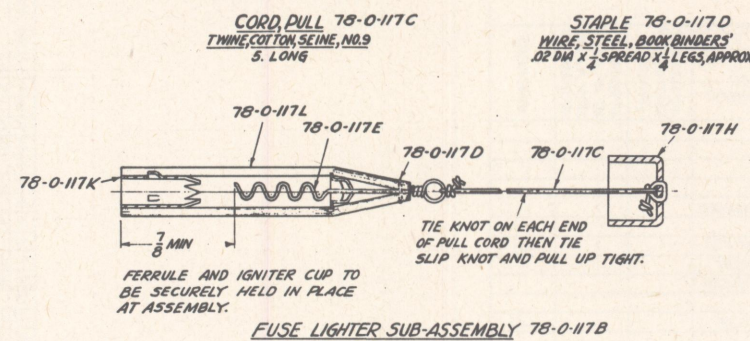
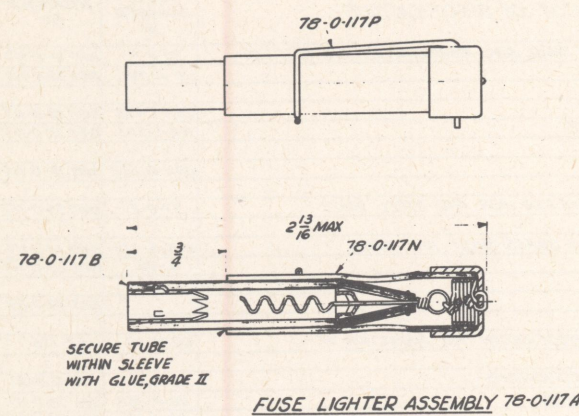
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED

DECIMAL ±
 FRACTIONAL ±
 ANGULAR ±

DRG. PERTAINS TO

SUBMITTED: [Signature]
 CHECKER: [Signature]
 EXAMINED: [Signature]
 APPROVED BY ORDER OF THE CHIEF OF ORDNANCE: [Signature]
 COL., ORD. DEPT. U.S.A.

ORDNANCE DEPT., U.S.A.



LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	ASSEMBLY AND DETAILS	78-0-117
2	LIST OF PARTS AND LIST OF SPECS	78-0-117A
3		
4	BOX, PACKING	76-1-1288
5	CARTON, PACKING	76-1-1287

NOTICE: THIS DRAWING SHALL NOT BE USED OR REPRODUCED
EITHER WHOLLY OR IN PART, EXCEPT WHEN AUTHORIZED IN
CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

LIGHTER, FUSE, M3
ASSEMBLY AND DETAILS.

NEW TRAFFICITY & PROTECTIVE FORM		CLASS	DIVISION	DRAWING																									
		78	0	117																									
PHYSICAL PROPERTIES		DRAWING PERTAINS TO																											
		A-90506 73-0-116 78-0-119																											
12. DATE OF EXAMIN JAN 27, 1950 FILE NUMBER																													
<table border="1"> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> </table>																													
TOLERANCES ON DIMENSIONS (Indicate tolerance type of card)		DO NOT DU (See Specification)																											
SCALE		1/4" = 1" <i>Q2B</i> 1/8" = 1" <i>Q2B</i> 1/16" = 1" <i>Q2B</i> 1/32" = 1" <i>Q2B</i> 1/64" = 1" <i>Q2B</i> 1/128" = 1" <i>Q2B</i> 1/256" = 1" <i>Q2B</i> 1/512" = 1" <i>Q2B</i> 1/1024" = 1" <i>Q2B</i> 1/2048" = 1" <i>Q2B</i> 1/4096" = 1" <i>Q2B</i> 1/8192" = 1" <i>Q2B</i> 1/16384" = 1" <i>Q2B</i> 1/32768" = 1" <i>Q2B</i> 1/65536" = 1" <i>Q2B</i> 1/131072" = 1" <i>Q2B</i> 1/262144" = 1" <i>Q2B</i> 1/524288" = 1" <i>Q2B</i> 1/1048576" = 1" <i>Q2B</i> 1/2097152" = 1" <i>Q2B</i> 1/4194304" = 1" <i>Q2B</i> 1/8388608" = 1" <i>Q2B</i> 1/16777216" = 1" <i>Q2B</i> 1/33554432" = 1" <i>Q2B</i> 1/67108864" = 1" <i>Q2B</i> 1/134217728" = 1" <i>Q2B</i> 1/268435456" = 1" <i>Q2B</i> 1/536870912" = 1" <i>Q2B</i> 1/1073741824" = 1" <i>Q2B</i> 1/2147483648" = 1" <i>Q2B</i> 1/4294967296" = 1" <i>Q2B</i> 1/8589934592" = 1" <i>Q2B</i> 1/17179869184" = 1" <i>Q2B</i> 1/34359738368" = 1" <i>Q2B</i> 1/68719476736" = 1" <i>Q2B</i> 1/137438953472" = 1" <i>Q2B</i> 1/274877906944" = 1" <i>Q2B</i> 1/549755813888" = 1" <i>Q2B</i> 1/1099511627776" = 1" <i>Q2B</i> 1/2199023255552" = 1" <i>Q2B</i> 1/4398046511104" = 1" <i>Q2B</i> 1/8796093022208" = 1" <i>Q2B</i> 1/17592186044416" = 1" <i>Q2B</i> 1/35184372088832" = 1" <i>Q2B</i> 1/70368744177664" = 1" <i>Q2B</i> 1/140737488355328" = 1" <i>Q2B</i> 1/281474976710656" = 1" <i>Q2B</i> 1/562949953421312" = 1" <i>Q2B</i> 1/1125899906842624" = 1" <i>Q2B</i> 1/2251799813685248" = 1" <i>Q2B</i> 1/4503599627370496" = 1" <i>Q2B</i> 1/9007199254740992" = 1" <i>Q2B</i> 1/18014398509481984" = 1" <i>Q2B</i> 1/36028797018963968" = 1" <i>Q2B</i> 1/72057594037927936" = 1" <i>Q2B</i> 1/144115188075855872" = 1" <i>Q2B</i> 1/288230376151711744" = 1" <i>Q2B</i> 1/576460752303423488" = 1" <i>Q2B</i> 1/1152921504606846976" = 1" <i>Q2B</i> 1/2305843009213693952" = 1" <i>Q2B</i> 1/4611686018427387904" = 1" <i>Q2B</i> 1/9223372036854775808" = 1" <i>Q2B</i> 1/18446744073709551616" = 1" <i>Q2B</i> 1/36893488147419103232" = 1" <i>Q2B</i> 1/73786976294838206464" = 1" <i>Q2B</i> 1/147573952589676412928" = 1" <i>Q2B</i> 1/295147905179352825856" = 1" <i>Q2B</i> 1/590295810358705651712" = 1" <i>Q2B</i> 1/1180591620717411303424" = 1" <i>Q2B</i> 1/2361183241434822606848" = 1" <i>Q2B</i> 1/4722366482869645213696" = 1" <i>Q2B</i> 1/9444732965739290427392" = 1" <i>Q2B</i> 1/18889465931478580854784" = 1" <i>Q2B</i> 1/37778931862957161709568" = 1" <i>Q2B</i> 1/75557863725914323419136" = 1" <i>Q2B</i> 1/151115727451828646838272" = 1" <i>Q2B</i> 1/302231454903657293676544" = 1" <i>Q2B</i> 1/604462909807314587353088" = 1" <i>Q2B</i> 1/1208925819614629174706176" = 1" <i>Q2B</i> 1/2417851639229258349412352" = 1" <i>Q2B</i> 1/4835703278458516698824704" = 1" <i>Q2B</i> 1/9671406556917033397649408" = 1" <i>Q2B</i> 1/19342813113834066795298816" = 1" <i>Q2B</i> 1/38685626227668133590597632" = 1" <i>Q2B</i> 1/77371252455336267181195264" = 1" <i>Q2B</i> 1/154742504910672534362390528" = 1" <i>Q2B</i> 1/309485009821345068724781056" = 1" <i>Q2B</i> 1/618970019642690137449562112" = 1" <i>Q2B</i> 1/1237940039285380274899124224" = 1" <i>Q2B</i> 1/2475880078570760549798248448" = 1" <i>Q2B</i> 1/4951760157141521099596496896" = 1" <i>Q2B</i> 1/9903520314283042199192993792" = 1" <i>Q2B</i> 1/19807040628566084398385987584" = 1" <i>Q2B</i> 1/39614081257132168796771975168" = 1" <i>Q2B</i> 1/79228162514264337593543950336" = 1" <i>Q2B</i> 1/158456325028528675187087900672" = 1" <i>Q2B</i> 1/316912650057057350374175801344" = 1" <i>Q2B</i> 1/633825300114114700748351602688" = 1" <i>Q2B</i>																											

(a) SEE LIST OF PARTS FOR COMPOSITIONS, ALTERNATIVE MATERIALS AND PROTECTIVE FINISHES.

SCALE, INCHES, $\frac{2}{1}$

LINE NO.	NAME OF PART	NUMBER REQD PER COMPONENT	PIECE MARK	MATERIAL			APPROXIMATE UNIT WEIGHT (OUNCES)	APPROXIMATE WT OF RAW STOCK PER 1000 ASSEMBLIES	REMARKS
				SIZE OR FORM	KIND	GRADE	SPEC NUMBER		
1	FUSE LIGHTER ASSEMBLY		78-0-117 A						
2	FUSE LIGHTER SUB-ASSEMBLY		78-0-117 B						
3	IGNITER ASSEMBLY		78-0-117 E						
4									
5	CAP	1	78-0-117 H	MOLDED	POLYSTYRENE	CLEAR	COMMERCIAL		
6	CHARGE, IGNITER	1	78-0-117 G		IGNITER COMPOSITION				(a)
7	CLIP, SAFETY	1	78-0-117 P	WIRE	STEEL, WIRE, SPRING, MUSIC	COMP A	QQ-W-470		(d)
8	CORD, PULL	1	78-0-117 C	NO. 9	THWINE, COTTON SEINE		T-T-881		
9	CUP, IGNITER	1	78-0-117 M	STRIP	GILDING METAL		JAN-G-439		
10									
11	FERRULE	1	78-0-117 K	SHEET	STEEL	WD1010 TO 1020	57-136		(d)
12									
13	SLEEVE, FUSE LIGHTER	1	78-0-117 N	120 LB	KRAFT PAPER	B	UU-P-268		
14	STAPLE	1	78-0-117 D	WIRE	WIRE, STEEL, BOOKBINDER'S		QQ-W-414		
15									
16	TUBE, FUSE LIGHTER	1	78-0-117 L	120 LB	KRAFT PAPER	B	UU-P-268		
17									
18	WIRE, FRICTION	1	78-0-117 F	WIRE	STEEL	WD1010	48-5		(c), (f)
19									
20					FRICTION COMPOSITION				(b)
21									
22					GLUE	II	3-102		
23									
24					PASTE, FLOUR		COMMERCIAL		
25									
26									
27									
28									

(a) IGNITER COMPOSITION(e)

POTASSIUM CHLORATE, GRADE I, CLASS d, 88% \pm 2% SPEC JAN-P-150.
 CHARCOAL, CLASS c, 10.0% \pm .5% SPEC JAN-C-178
 DEXTRIN, TYPE II, 2.0% \pm .5% SPEC JAN-D-232
 AT ASSEMBLY, DAMPEN COMPOSITION WITH WATER AND
 PRESS UNDER APPROX 300 LBS TOTAL LOAD.
 ALL PERCENTAGES ARE BY WEIGHT.

(b) FRICTION COMPOSITION(e)

SHELLAC, ORANGE, 7 GRAMS, SPEC TT-S-271. DISSOLVE
 IN 200 CC ALCOHOL, ETHYL, GRADE I, CLASS A, SPEC O-A-396
 PREPARE PASTE BY ADDING RED PHOSPHORUS, SPEC 50-11-137,
 TO THE SOLUTION IN PROPORTION OF 3 GRAMS OF RED
 PHOSPHORUS TO 2 CC OF THE SOLUTION.

(c) ALTERNATIVE MATERIAL: (3) PICTURE-WIRE CORD, CLASS B, NO. 1, SPEC RR-C-596

(d) PROTECTIVE FINISH: TYPE I, CLASS TS, RS OR RSG, SPEC 57-0-2

(e) COMMERCIAL COMPOSITIONS COMPLYING WITH REQUIREMENTS OF SPEC MAY BE SUBSTITUTED FOR THESE COMPOSITIONS AFTER QUALIFICATION AND APPROVAL IN ACCORDANCE WITH SPEC

(f) WIRE SHALL BE COATED WITH A SOLUTION OF 7 GRAMS, SHELLAC, ORANGE SPEC TT-S-271 DISSOLVED IN 200 CC ALCOHOL ETHYL, GRADE I, CLASS A, SPEC O-A-396. ALLOW TO DRY BEFORE COATING WITH FRICTION COMPOSITION.

(3) ALTERNATIVE MATERIALS ARE INTENDED TO BE USED ONLY WHEN PRESCRIBED MATERIALS ARE NOT AVAILABLE.

CL & DIV

D

LINE NO.	LIST OF SPECIFICATIONS	SPEC NUMBER *	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMMUNITION, GENERAL SPEC FOR	50-0-1	DWG 78-0-117
2	ALCOHOL, ETHYL	O-A-396	DWG 78-0-117
3			
4	CHARCOAL	JAN-C-178	DWG 78-0-117
5	CORD, PICTURE-WIRE	RR-C-596	DWG 78-0-117
6			
7	DEXTRIN	JAN-D-232	DWG 78-0-117
8			
9	FINISHES, PROTECTIVE, FOR IRON AND STEEL PARTS	57-0-2	DWG 78-0-117
10			
11	GILDING METAL (95/5 BRASS) SHEET AND STRIP	JAN-G-439	DWG 78-0-117
12	GLUE	3-102	DWG 78-0-117
13			
14	LIGHTER, FUSE, M1		DWG 78-0-117
15			
16	METALS, GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	57-136
17			
18	PAPER, GENERAL SPECIFICATIONS	UU-P-31	UU-P-268
19	PAPER, KRAFT WRAPPING	UU-P-268	DWG 78-0-117
20	PHOSPHORUS, RED	50-11-137	DWG 78-0-117
21	POTASSIUM CHLORATE	JAN-P-150	DWG 78-0-117
22			
23	SHELLAC (ORANGE) AND OTHER LACS	TT-S-271	DWG 78-0-117
24	STEEL, CARBON AND ALLOY, SHEETS AND STRIPS	57-136	DWG 78-0-117
25			
26	THWINE, COTTON, SEINE	T-T-881	DWG 78-0-117
27			
28	WIRE, SOFT IRON AND STEEL, BARE AND COATED	48-5	DWG 78-0-117
29	WIRE, STEEL, BOOKBINDER'S	QQ-W-414	DWG 78-0-117
30	WIRE, STEEL (CARBON), SPRING, MUSIC	QQ-W-470	DWG 78-0-117

*THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON SHALL NOT APPLY.

NOTICE: THIS DRAWING SHALL NOT BE USED OR REPRODUCED EITHER WHOLLY OR IN PART, EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

LIGHTER, FUSE, M3. LIST OF PARTS AND LIST OF SPECIFICATIONS.

HEAT TREATMENT & PROTECTIVE FINISH		CLASS	DIVISION	DRAWING
		78	0	117A
DRAWING PERTAINS TO		78-0-117		
PHYSICAL PROPERTIES		78-0-117		
ORIGINAL DATE OF DRAWING		JAN 27, 1950		
REVISIONS				
WEIGHT		DO NOT APPLY PART NO. (See Specification)		
SCALE		5/16"		
TOLERANCES ON DIMENSIONS (Unless otherwise specified)		FRACTIONS DECIMALS ANGLES		
SUBMITTED		MR. BREWSTER		
EXAMINED		C. D. Dutton		
APPROVED		J. H. Dutton		
D		ORDNANCE DEPT. U. S. ARMY		

P-885894

LIST OF PARTS

LINE NO	NAME OF PART	NUMBER REQD PER COMPONENT	PIECE MARK	MATERIAL			SPEC NUMBER *	APPROXIMATE UNIT WEIGHT (POUNDS)	APPROXIMATE WT OF RAW STOCK PER UNIT ASSEMBLIES	REMARKS
				SIZE OR FORM	KIND	GRADE				
1	ASSEMBLY		78-0-119A							
2	BODY ASSEMBLY		78-0-119 G							
3	COVER ASSEMBLY		78-0-119F							
4	FUSE LIGHTER, M3		78-0-117A							
5										
6										
7										
8										
9	CHARGE	1	78-0-119E		PHOTOFLASH POWDER	TYPE I CLASS A	JAN-P-466			
10										
11										
12										
13										
14										
15	DISC, NO. 1	1	78-0-119K	SHEET	BOARD, BINDERS*		UU-B-536			
16	DISC, NO. 2	1	78-0-119L	SHEET	BOARD, BINDERS*		UU-B-536			
17	DISC, NO. 3	1	78-0-119M	SHEET	BOARD, BINDERS*		UU-B-536			
18	DISC, NO. 4	1	78-0-119N	SHEET	BOARD, BINDERS*		UU-B-536			
19										
20										
21	FUSE, SAFETY	1	78-0-119B			TYPE III	50-69-1			
22										
23	LABEL	1	78-0-119Q	SHEET	GUMMED WHITE PAPER		COMMERCIAL			(a)
24										
25										
26										
27										
28	TAPE, BINDING	1	78-0-119D	ROLL	ADHESIVE TAPE	TYPE II, B	JAN-P-127			
29	TAPE, FUSE	1	78-0-119C	ROLL	ADHESIVE TAPE	TYPE II, B	JAN-P-127			
30										
31	TUBE, INNER	1	78-0-119P	120LB	KRAFT PAPER	B	UU-P-268			
32	TUBE, OUTER	2	78-0-119H	120LB	KRAFT PAPER	B	UU-P-268			
33										
34										
35										
36										
37					GLUE	II	3-102			
38										
39					INK, PRINTER'S, BLACK		COMMERCIAL			
40										
41					LACQUER ENAMEL, BLUE-GRAY	I	JAN-L-73			
42										
43					PASTE, FLOUR		COMMERCIAL			
44					PLIOBOND CEMENT	NO. M30	COMMERCIAL			(b)
45										

(a) WEIGHT UNGUMMED, 32 LB PER 1000 SHEETS 17 X 22.

(b) U.S. PLYWOOD CORP, PLIOBOND CEMENT NO. M30 OR APPROVED SUBSTANTIAL EQUAL.

LIST OF SPECIFICATIONS

LINE NO	SPEC NUMBER *	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMMUNITION, GEN SPEC FOR	50-0-1 DWG 78-0-119
2		
3		
4	BOARD, BINDERS*	UU-B-536 DWG 78-0-119
5		
6		
7		
8		
9		
10		
11	FUSE, SAFETY	50-69-1 DWG 78-0-119
12		
13		
14	GLUE	3-102 DWG 78-0-119
15		
16		
17	LACQUER ENAMEL, LUSTRELESS	JAN-L-73 DWG 78-0-119
18		
19		
20		
21	PACKAGING ETC, TAPE, ADHESIVE, PRESSURE-SENSITIVE, WATER RESISTANT	JAN-P-127 DWG 78-0-119
22	PAINT, VARNISH, LACQUER AND RELATED MATERIALS; METHODS ETC	TT-P-141 JAN-L-73
23	PAPER; GENERAL SPECIFICATIONS	UU-P-31 UU-B-536
24	PAPER; KRAFT, WRAPPING	UU-P-268 DWG 78-0-119
25		
26		
27	POWDER, PHOTOFLASH	JAN-P-466 DWG 78-0-119
28		
29		
30		
31	SIMULATOR, HAND GRENADE, M116, LOADING, ASSEMBLING AND PACKING	DWG 78-0-119
32		
33		
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35		
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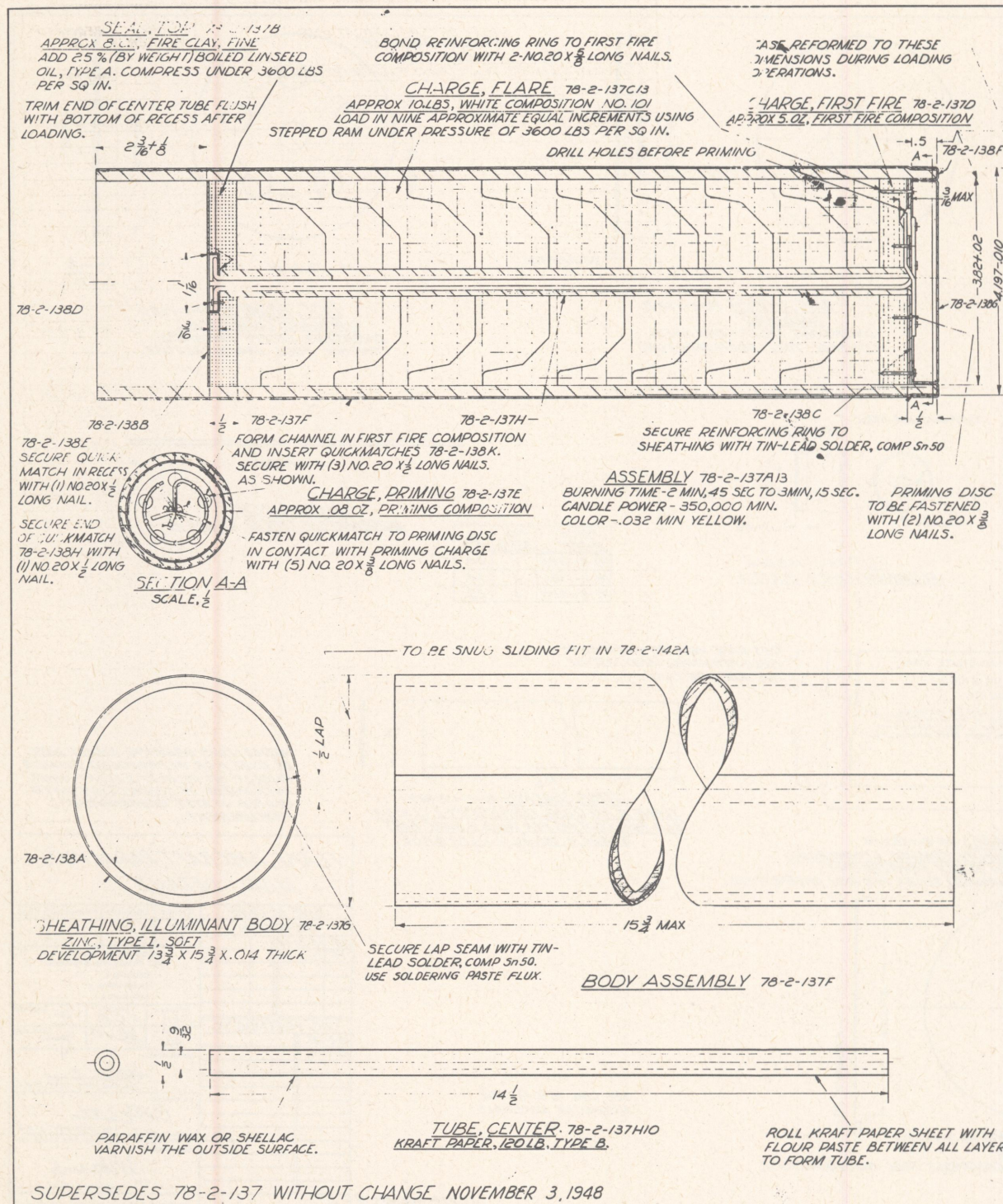
* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED, A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

SIMULATOR, HAND GRENADE, M116.
LIST OF PARTS AND LIST OF SPECIFICATIONS.

HEAT TREATMENT & PROTECTIVE FINISH	CLASS	DIVISION	DRAWING
	78	0	119A
PHYSICAL PROPERTIES	DRAWING PERTAINS TO		
	78-0-119		
ORIGINAL DATE OF DRAWING	JAN 27, 1950		
REVISIONS			
DO NOT	DO NOT	APPLY PART NO.	
WEIGHT	DO	(As Specified)	
SCALE	1/4" = 1"	1/4" = 1"	
TOLERANCES ON DIMENSIONS (Unless otherwise specified)	1/16" 1/32" 1/64"		
SUBMITTER	O.P. Seeman		
EXAMINER	C.R. Dutton		
APPROVED	H. Adams		
D	ORDNANCE DEPT		

NOTICE: THIS DRAWING SHALL NOT BE USED OR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

P-886224



LIST OF PARTS									
LINE NO.	NAME OF PART	NUMBER REQD PER COMPONENT	PIECE MARK	SIZE OR FORM	KIND	GRADE	SPEC NO.	APPROXIMATE UNIT WEIGHT (OUNCES)	REMARKS
1	ASSEMBLY		78-2-137A					12.85 LBS	
2	BODY ASSEMBLY		78-2-137F					27.00	
3	BODY	1	78-2-138A	SHEET	BOXBOARD		50-11-79	14.5	
4	CHARGE, FIRST FIRE	1	78-2-137D		FIRST FIRE COMPOSITION		50-56-2	5.00	
5	CHARGE, FLARE	1	78-2-137C		WHITE COMPOSITION NO. 101		50-56-2	10.85	
6	CHARGE, PRIMING	1	78-2-137E		PRIMING COMPOSITION			.08	(b)
7	COVER, CLOSING	1	78-2-138G		TERNE-PLATE (LONG TERNE) TYPE II, CL A	2	QQ-T-191	1.40	
8	DISC, UPPER	1	78-2-138C	SHEET	ALUMINUM	TYPE II, CLASS A	QQ-A-561	.04	
9	DISC, LOWER	1	78-2-138C	SHEET	CHIPBOARD		COMMERCIAL	.20	
10	QUICKMATCH, LONG	1	78-2-138E		QUICKMATCH	TYPE II, CLASS A	JAN-Q-378	1.10	
11	QUICKMATCH, SHORT	3	78-2-138K		QUICKMATCH	TYPE II, CLASS A	JAN-Q-378	.25	
12	QUICKMATCH, INTERMEDIATE	1	78-2-138H		QUICKMATCH	TYPE II, CLASS A	JAN-Q-378	.51	
13	RING, REINFORCING	1	78-2-138F		TERNE-PLATE (LONG TERNE) TYPE II, CL A	2	QQ-T-191	1.40	
14	SEAL, TOP	1	78-2-137B		FIRE CLAY	FINE	HH-G-451	7.25	
15	SHEATHING, ILLUMINANT BODY	1	78-2-137G	SHEET	ZINC	TYPE I, SOFT	QQ-Z-301	12.55	
16	TUBE, CENTER	1	78-2-137H	SHEET	KRAFT PAPER, 120 LB	TYPE B	UU-P-268	.70	
17		2			NO. 20 X $\frac{1}{2}$				
18		4			NO. 20 X $\frac{3}{8}$				
19		8			NO. 20 X $\frac{3}{8}$				
20					BOILED LINSEED OIL	TYPE A	JUL-Q-331		
21					FLUX, SOLDERING; PASTE		O-F-506		
22					PASTE, FLOUR		COMMERCIAL		
23					SOLDER, TIN-LEAD	COMP Sn50	QQ-S-571		
24					WAX, PARAFFIN		2-63		(c)

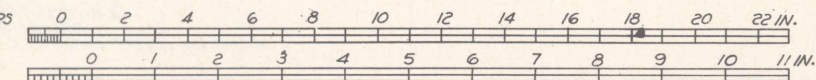
(a) ALTERNATIVE MATERIAL:-- JUTE LINER, COMMERCIAL. FOR DETAIL REQUIREMENTS SEE DETAIL 78-2-138A.

(b) PRIMING COMPOSITION
DEXTRIN ----- 3 GRAMS, SPEC JAN-D-232
BLACK POWDER, GRADE A-4, ----- 97 GRAMS, SPEC JAN-P-223
WATER ----- 40 CC MAX

(c) ALTERNATIVE MATERIAL:-- ORANGE SHELLAC VARNISH, GRADE B, MEDIUM BODY, SPEC TT-V-91

LINE NO.	LIST OF SPECIFICATIONS	SPEC NUMBER	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM, GENERAL SPEC FOR	50-0-1	DWG 78-2-137
2	ALUMINUM; PLATES AND SHEETS	QQ-A-561	DWG 78-2-138
3	BOXBOARD	50-11-79	DWG 78-2-133
4	CLAY; FIRE, GROUND	HH-G-451	DWG 78-2-137
5	DEXTRIN	JAN-D-232	DWG 78-2-137
6	FLUX, SOLDERING; PASTE	O-F-506	DWG 78-2-138
7	METALS, GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	QQ-T-191
8	OIL; LINSEED, BOILED	JUL-Q-331	DWG 78-2-137
9	PAPER; GENERAL SPECIFICATION FOR	UU-P-31	UU-P-268
10	PAPER; KRAFT, WRAPPING	UU-P-268	DWG 78-2-137
11	POWDER, BLACK	JAN-P-223	DWG 78-2-137
12	PYROTECHNICS, GEN SPEC FOR WHITE & COLORED COMPOSITIONS	50-56-2	DWG 78-2-137
13	QUICKMATCH	JAN-Q-378	DWG 78-2-138
14	SOLDER; SOFT (TIN, TIN-LEAD AND LEAD-SILVER)	QQ-S-571	DWG 78-2-137
15	TERNE-PLATE, (LONG TERNE)	QQ-T-191	DWG 78-2-137
16	VARNISH; SHELLAC	TT-V-91	DWG 78-2-137
17	WAX, PARAFFIN	2-63	DWG 78-2-137
18	ZINC, PLATES, SHEETS AND STRIPS	QQ-Z-301	DWG 78-2-137

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY, EXCEPT THOSE REFERRED TO IN 50-56-2.

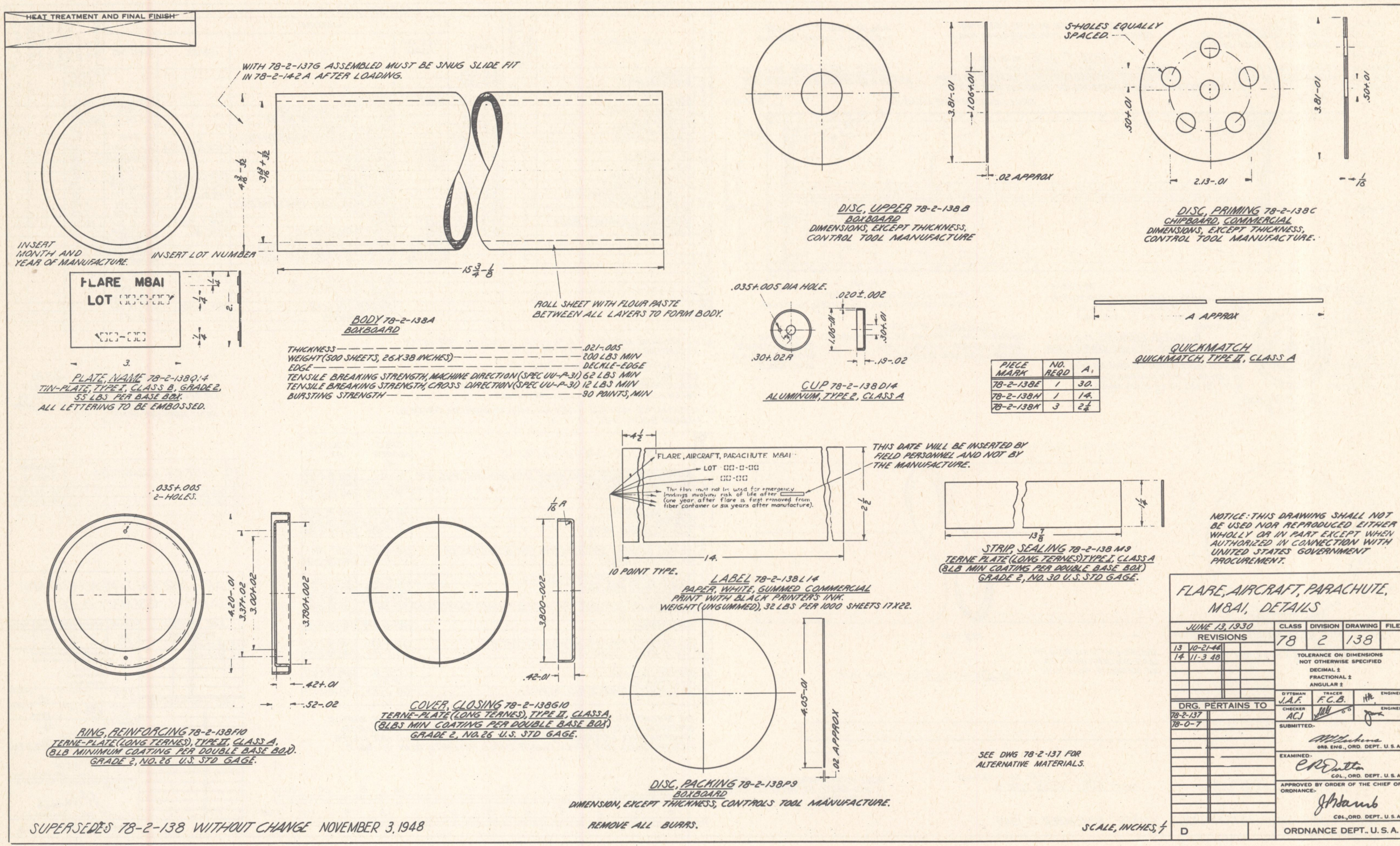


NOTICE: THIS DRAWING SHALL NOT BE USED NOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	ASSEMBLY	78-2-137
2	DETAILS	78-2-138

FLARE, AIRCRAFT, PARACHUTE, MBA. ILLUMINANT ASSEMBLY & DETAILS

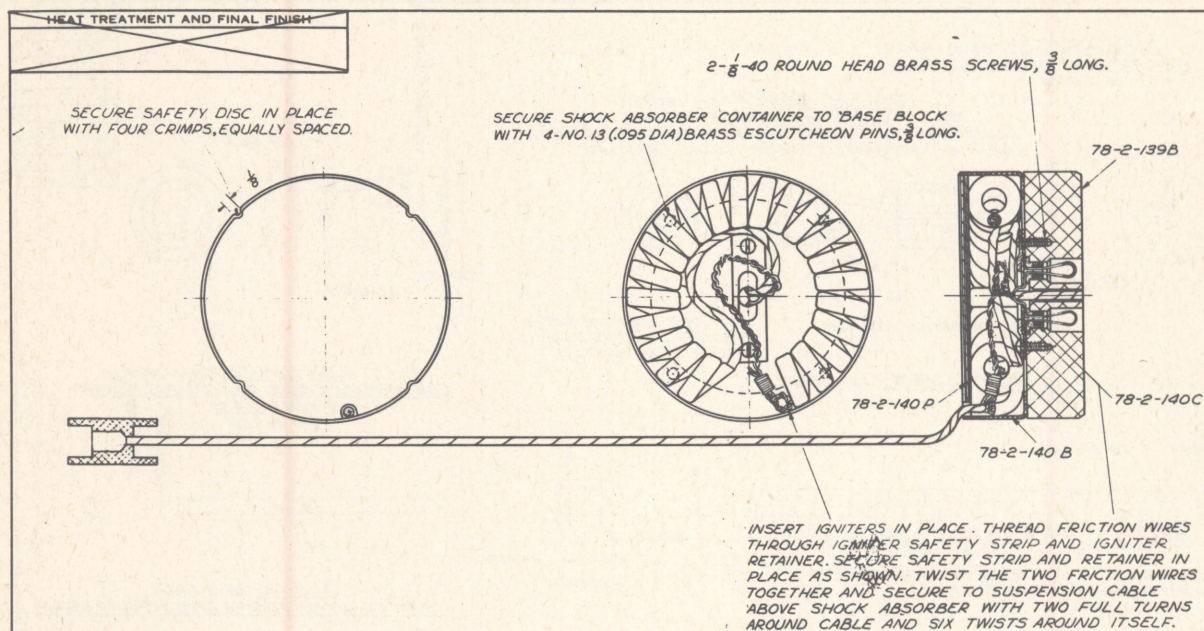
JUNE 13, 1930		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	137	
13	8-5-45				
14	11-3-48				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED					
DECIMALS FRACTIONAL ANGULAR					
DRG. PERTAINS TO		CHECKER	TRACER	ENGINEER	
		ACJ	F.F.	HH	
SUBMITTED:					
EXAMINED:					
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:					
ORDNANCE DEPT., U. S. A.					



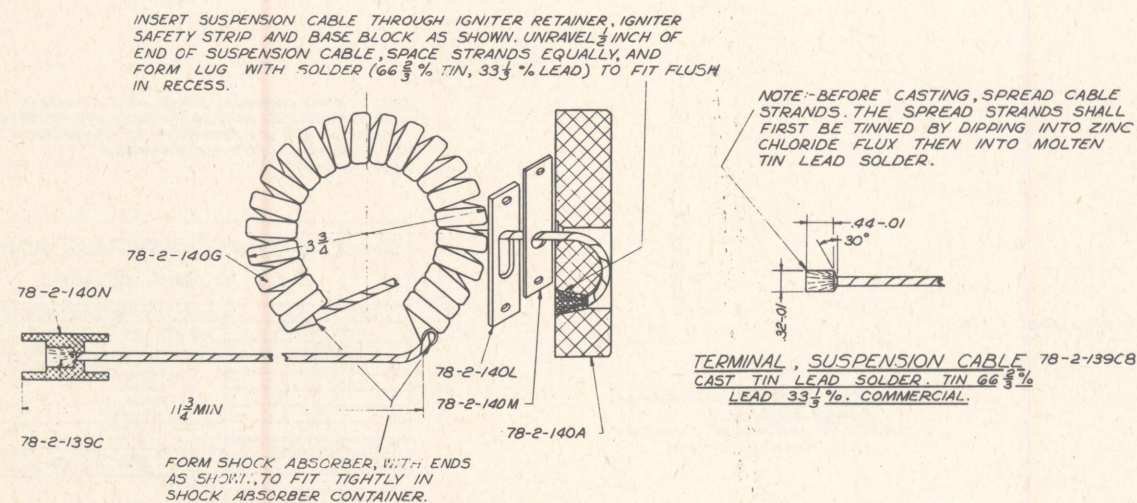
SUPERSEDES 78-2-138 WITHOUT CHANGE NOVEMBER 3, 1948

REMOVE ALL BURRS.

SEE DWG 78-2-137 FOR ALTERNATIVE MATERIALS.



ASSEMBLY 78-2-139A17



SUPERSEDES 78-2-139 WITHOUT CHANGE DEC 8, 1948

LIST OF PARTS

LINE NO.	NAME OF PART	NUMBER REQUIRED PER COMPONENT	PIECE MARK	SIZE OR FORM	MATERIAL	GRADE	SPEC NUMBER	APPROXIMATE UNIT WEIGHT (OUNCES)	APPROX GROSS WT OF PAIR STOCK PER 1000 ASSEMBLIES	REMARKS
1	ASSEMBLY		78-2-139A					26.00		
2	IGNITER ASSEMBLY		78-2-140C					.10		
3	SHOCK ABSORBER ASSEMBLY		78-2-140G					7.88		
4	SHOCK ABSORBER AND BASE BLOCK ASS'Y		78-2-139B					24.55		
5										
6	BLOCK, BASE	1	78-2-140A	ROD	ALUMINUM-ALLOY	CONDITION T	QQ-A-351	15.55		(d) (e)
7	CABLE, SUSPENSION	1	78-2-140K	$\frac{1}{8}$ DIA X 63 LG	STEEL CABLE FLEXIBLE		AN-RR-C-43	2.60		
8	CHARGE, IGNITER	2	78-2-140E		IGNITER COMPOSITION			.004		(b)
9	CONTAINER, SHOCK ABSORBER	1	78-2-140B	SHEET	ALUMINUM	TYPE 2, CLASS A	QQ-A-561	.50		
10	CUP, IGNITER	2	78-2-140F	ROD	BRASS	B, HALF HARD	QQ-B-611	.07		
11	DISC, SAFETY	1	78-2-140P	SHEET	BOARD, BINDERS		UU-B-536	.70		
12										
13	RETAINER, IGNITER	1	78-2-140L	STRIP	BRASS	C, HALF HARD	QQ-B-611	.15		
14	SPOOL, SUSPENSION WIRE	1	78-2-140N	ROD	ALUMINUM-ALLOY	CONDITION T	QQ-A-351	.74		
15	STRIP, IGNITER SAFETY	1	78-2-140M	STRIP	ALUMINUM	TYPE 2, CLASS A	QQ-A-561	.03		
16	TERMINAL, SUSPENSION CABLE	1	78-2-139C		SOLDER, TIN-LEAD	66 $\frac{2}{3}$ % TIN, 33 $\frac{1}{3}$ % LEAD	COMMERCIAL	.20		
17	TUBING	1	78-2-140H		SEAMLESS COPPER TUBING	TYPE M, HARD DRAWN	NW-T-799	5.28		
18	WIRE, FRICTION	2	78-2-140D	NO. 1X10	TINNED WIRE PICTURE CORD		COMMERCIAL	.03		
19										
20					FLUX, ZINC CHLORIDE		COMMERCIAL			
21		2		$\frac{1}{8}$ -40 X $\frac{3}{8}$	SCREWS, ROUND HEAD, BRASS		COMMERCIAL			(c)
22		4		.095 (NO. 13)	PINS, ESCUTCHEON, BRASS		COMMERCIAL			(c)
23					FRICTION COMPOSITION					(a)
24					SOLDER, TIN-LEAD	66 $\frac{2}{3}$ % TIN, 33 $\frac{1}{3}$ % LEAD	COMMERCIAL			

(a) FRICTION COMPOSITION

SHELLAC, ORANGE, 7 GRAMS, SPEC TT-S-271. DISSOLVE IN 200 CC ALCOHOL, ETHYL, GRADE I, CLASS A, SPEC O-A-396. PREPARE PASTE BY ADDING RED PHOSPHORUS SPEC 50-11-137, TO THE SOLUTION IN THE PROPORTION OF 3 GRAMS OF RED PHOSPHORUS TO 2 CC OF THE SOLUTION.

(b) IGNITER COMPOSITION

POTASSIUM CHLORATE, GRADE I, CLASS 6-88%, SPEC JAN-P-150. CHARCOAL, CLASS C, 10%, SPEC JAN-C-178. DEXTRIN, 2%, SPEC JAN-D-232.

PERCENTAGES ARE BY WEIGHT.

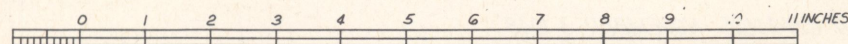
(c) ALTERNATIVE: .098 DIA ROUND HEAD, STEEL DRIVE SCREWS, $\frac{3}{8}$ LONG.

(d) ALTERNATIVE MATERIAL: ALUMINUM-BASE-ALLOY DIE CASTING, CLASS I, SPEC QQ-A-591.

LINE NO.	LIST OF SPECIFICATIONS	SPEC NUMBER	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM, GENERAL SPEC FOR	50-0-1	DWG 78-2-139
2	ALCOHOL, ETHYL	O-A-396	DWG 78-2-139
3	ALUMINUM, PLATES AND SHEETS	QQ-A-561	DWG 78-2-140
4	AL-ALLOY AL-17 (AL-COPPER-MANGANESE) RODS, BARS, ETC	QQ-A-351	DWG 78-2-140
5	ALUMINUM BASE-ALLOY, DIE CASTINGS	QQ-A-591	DWG 78-2-139
6			
7	BOARD BINDERS	UU-B-536	DWG 78-2-140
8	BRASS, COMMERCIAL; BARS, PLATES, RODS, SHAPES, SHEETS AND STRIPS	QQ-B-611	DWG 78-2-140
9	CABLE, STEEL, CARBON FLEXIBLE, PREFORMED	AN-RR-C-43	DWG 78-2-140
10	CHARCOAL	JAN-C-178	DWG 78-2-139
11	DEXTRIN	JAN-D-232	DWG 78-2-140
12			
13	METALS; GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	QQ-B-611
14	PAPER; GENERAL SPECIFICATIONS	UU-P-31	UU-B-536
15	PHOSPHORUS, RED	50-11-137	DWG 78-2-139
16	POTASSIUM CHLORATE	JAN-P-150	DWG 78-2-139
17			
18	SHELLAC; ORANGE	TT-S-271	DWG 78-2-139
19	TUBING; COPPER, SEAMLESS	NW-T-799	DWG 78-2-140

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(e) ALTERNATIVE MATERIAL: HIGH DENSITY PLYWOOD, BIRCH ROTARY CUT VENEER MAXIMUM THICKNESS OF PLY $\frac{3}{8}$ INCH IMPREGNATED WITH PHENOL FORMALDEHYDE RESIN, AT A MINIMUM PRESSURE OF 1200 LBS PER SQ IN. RATIO OF RESIN TO WOOD 12% \pm 2% BY WEIGHT. FINISHED PRODUCT TO HAVE A MINIMUM SPECIFIC GRAVITY OF 1.15. BLOCK MUST WITHSTAND STEADY NORMAL PULL OF 1800 LBS ON SUSPENSION CABLE PROPERLY ASSEMBLED.



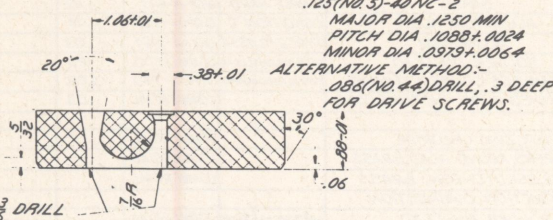
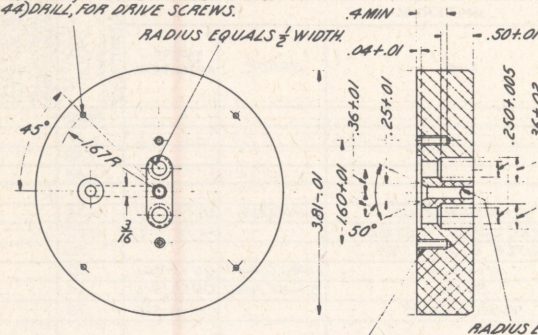
LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	ASSEMBLY	78-2-139
2	DETAILS	78-2-140
3		

NOTICE: THIS DRAWING SHALL NOT BE USED NOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

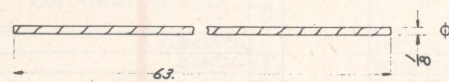
FLARE, AIRCRAFT, PARACHUTE, M8A1
BASE BLOCK ASSEMBLY & DETAIL

JUNE 13, 1930		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	139	
16	8-15-45				
17	12-8-48				
18	3-25-49				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED					
DECIMAL: \pm					
FRACTIONAL: \pm					
ANGULAR: \pm					
DRG. PERTAINS TO		OFFSHAW	TRACER	ENGINEER	
CHECKER		AKS	REC	REC	
SUBMITTED		ACJ			
EXAMINED					
C. K. Dutta					
COL., ORD DEPT. U.S.A.					
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE					
COL., ORD DEPT. U.S.A.					
ORDNANCE DEPT., U.S.A.					

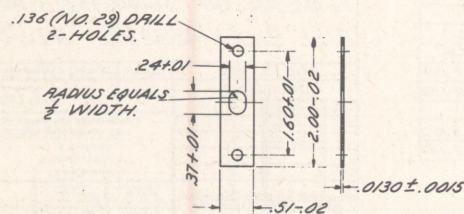
4 HOLES, EQUALLY SPACED, 4 DEEP
 .089 (NO. 43) DRILL, FOR ESCUTCHEON PINS.
 .086 (NO. 44) DRILL, FOR DRIVE SCREWS.



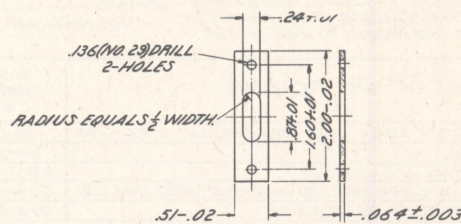
BLOCK, BASE 78-2-140A18
 ALUMINUM-ALLOY, CONDITION T
 FINISH 125



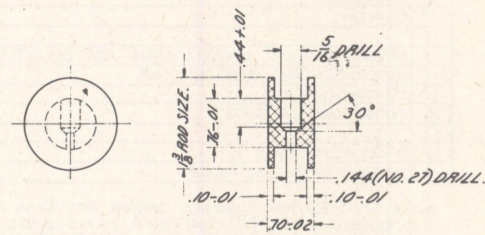
CABLE, SUSPENSION 78-2-140M18
 STEEL CABLE, FLEXIBLE,
 7 X 19 X 1/8 DIAM.



STRIP, IGNITER SAFETY 78-2-140M18
 ALUMINUM, TYPE 2, CLASS A

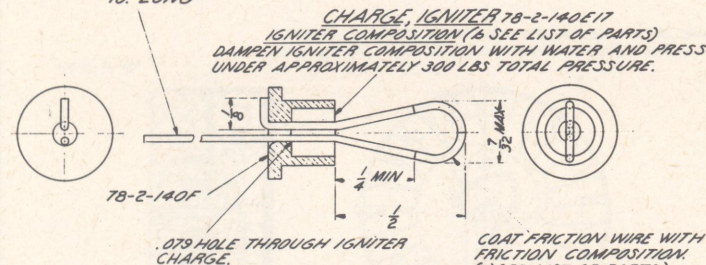


RETAINER, IGNITER 78-2-140L18
 COMMERCIAL BRASS, STRIP, COMPOSITION C, HALF HARD

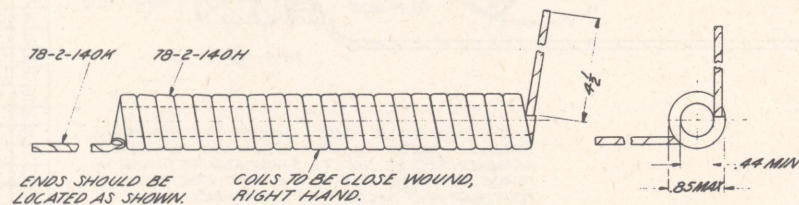


SPOOL, SUSPENSION WIRE 78-2-140N18
 ALUMINUM ALLOY, CONDITION T
 FINISH 125

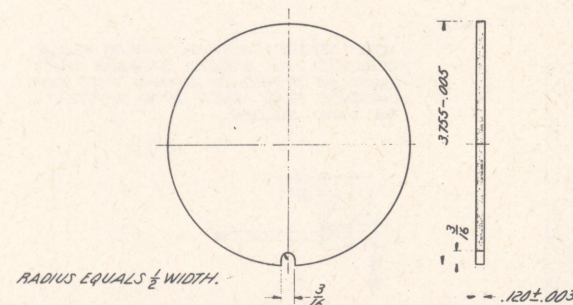
WIRE, FRICTION 78-2-140D18
 PICTURE-WIRE COARD, CLASS B, NO. 1
 10. LONG



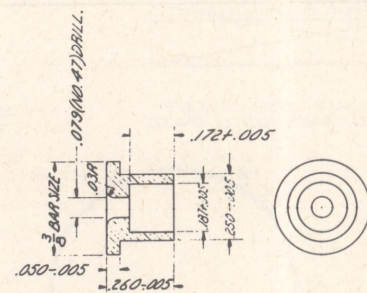
IGNITER ASSEMBLY 78-2-140C17



SHOCK ABSORBER ASSEMBLY 78-2-140G



DISC, SAFETY 78-2-140P18
 BOARD BINDERS
 DIAMETER DIMENSION CONTROLS
 TOOL MANUFACTURE.



CUP, IGNITER 78-2-140F18
 COMMERCIAL BRASS, ROD, COMPOSITION B,
 HALF HARD
 FINISH 125

TUBING 78-2-140H
 SEAMLESS COPPER TUBING, TYPE N, HARD DRAWN

NOTICE: THIS DRAWING SHALL NOT BE USED
 NOR REPRODUCED EITHER WHOLLY OR IN PART
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 PROCUREMENT.

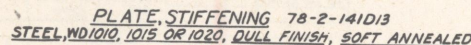
FLARE, AIRCRAFT, PARACHUTE, M8A1
 BASE BLOCK DETAILS.

DATE	CLASS	DIVISION	DRAWING	FILE
JUNE 13, 1930	78	2	140	
REVISIONS				
17 8-15-43				
18 11-3-48				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED				
DECIMAL ±				
FRACTIONAL ±				
ANGULAR ±				
DRG. PERTAINS TO				
78-2-139				
SUBMITTED:				
EXAMINED:				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:				
ORDNANCE DEPT. U. S. A.				

SUPERSEDES 78-2-140 WITHOUT CHANGE NOVEMBER 3, 1948

REMOVE ALL BURRS.

SCALE, INCHES, 1/16



(b) PROTECTIVE FINISH: TYPE I, CLASS TS, RS OR RSC.
SPEC 57-0-2

LINE NO	LIST OF DRAWINGS	DRAWING NUMBER
1	ASSEMBLY	78-2-141
2	SWIVEL LOOP ASSEMBLY	82-3-133
3		

NOTICE: This unit shall NOT BE USED FOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH A UNITED STATES GOVERNMENT PROJECT.

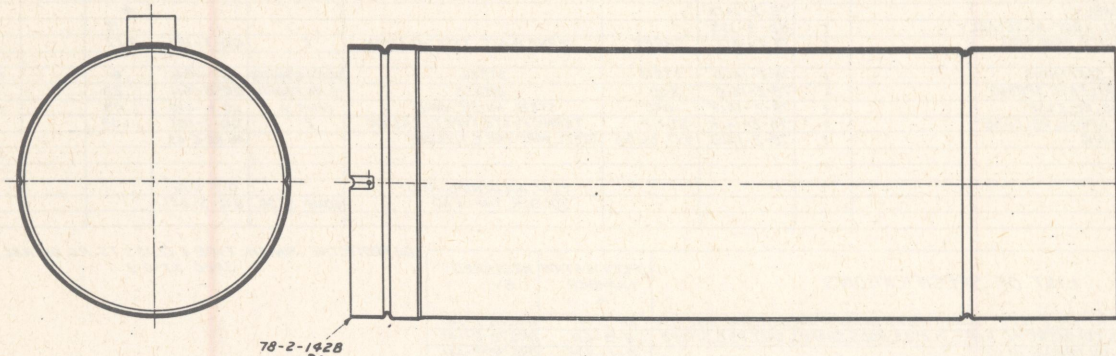
SUPERSEDES OLD TRACING 78-2-141
UNDER REVISION DATE OF JUNE 25, 1940.

FLARE, AIRCRAFT, PARACHUTE, M8A1.
HANG WIRE CONTAINER ASSEMBLY, AND
DETAILS.

REMOVE ALL BURRS.

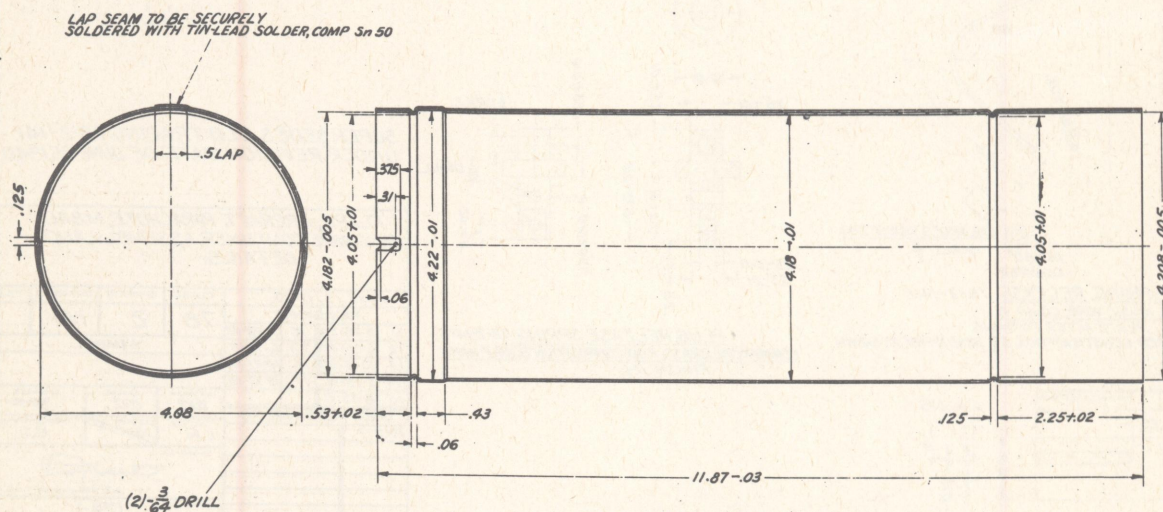
SCALE, INCHES, $\frac{1}{1}$, $\frac{2}{1}$

~~OBSCLETE~~ REVISION (7)



ASSEMBLY 78-2-142A 9

NOTE: USE SOLDERING FLUX PASTE ON ALL SOLDER JOINTS.



CASE PARACHUTE 78-2-142B 8
TERNE-PLATE (LONG TERNE), TYPE I, CLASS A.
(8LB. MINIMUM COATING PER DOUBLE BASE BOX)
GRADE 2, NO. 24 U.S. STANDARD GAGE

LINE NO	NAME OF PART	NUMBER REQD PER COMPONENT	PIECE MARK	LIST OF PARTS				APPROXIMATE WEIGHT (OUNCES)	APPROX. GROSS WT. OF RAW MATERIALS	REMARKS
				SIZE OR FORM	KIND	GRADE	SPEC. NO			
1	ASSEMBLY		78-2-142A					20.13		
2	CASE, PARACHUTE	1	78-2-142B		TERNE-PLATE	TYPE I, CLASS A, GRADE 2	QQ-T-191	18.76		
3										
4		2		12 OZ.	RIVETS, TINNERS, FLAT HEAD, TINNED		COMMERCIAL			
5					FLUX, SOLDERING PASTE		O-F-506			
6					SOLDER, TIN-LEAD	COMP Sn50	QQ-S-571			
7										
8										

LINE NO	LIST OF SPECIFICATIONS	SPECIFICATION NUMBER *	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM, GEN SPEC FOR	50-0-1	DRG. 78-2-142
2	FLUX, SOLDERING PASTE	O-F-506	DRG. 78-2-142
3	METALS, GENERAL SPECIFICATION FOR INSPEC OF	QQ-M-151	QQ-T-191
4	SOLDER, SOFT (TIN, TIN-LEAD, AND LEAD-SILVER)	QQ-S-571	DRG. 78-2-142
5	STEEL, SHEETS AND STRIP, CARBON AND ALLOY	ST-136	DRG. 78-2-142
6	TERNE-PLATE (LONG TERNE)	QQ-T-191	DRG. 78-2-142
7			
8			

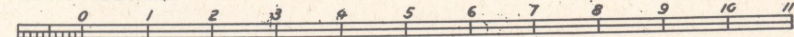
* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

NOTICE: THIS DRAWING SHALL NOT BE USED FOR PRODUCTION EITHER WHOLLY OR IN PART, UNLESS AUTHORIZED BY THE U.S. ARMY WITH UNITED STATES PATENT OFFICE.

SUPERSEDES IN PART OLD TRACING 78-2-142 UNDER REVISION DATE OF OCT. 10, 1938.

JUNE 13, 1930.				CLASS	DIVISION	DRAWING	FILE
REVISIONS				78	2	142	
6	10-4-37						
7	10-10-38						
8	6-25-40						
9	3-28-42						
10	6-7-43						
11	10-21-44						
12	12-13-48						
SUBMITTED BY:				DRG. PERTAINS TO			
DRG. PERTAINS TO				EXAMINED BY:			
APPROVED BY ORDER, CHIEF OF ORDNANCE				PICATINNY ARSENAL U.S.A.			

REMOVE ALL BURRS.



P-2555

HEAT TREATMENT AND FINAL FINISH

78-2-143G
103-03
77-02
BRAZE OR WELD SECURELY.
78-2-143F

SCREW 78-2-143C15
OVAL FILLISTER HEAD, STEEL,
COMMERCIAL
NO. 12-24 X 1 LONG

NUT 78-2-143E15
STEEL, COMMERCIAL
NO. 12-24

WASHER, LOCK 78-2-143D15
1/4 INCH, STEEL, COMMERCIAL

193+010
143-02
17-01
22-01
MIN RADIUS
.06 R
12 R
.062
415-02
238-02
269-02
.06 R
.125
25R
1.25
22+01
18
.875

BAND, SUSPENSION 78-2-143F11
STEEL, WD 1015, WITH PHYSICAL PROPERTIES AS FOLLOWS

BAND. SUSPENSION 78-2-143F11
STEEL, WD 1015, WITH PHYSICAL PROPERTIES AS FOLLOWS

PHYSICAL PROPERTIES	
T.S.	42,000 MIN
Y.P.	30,000 MIN
ELONG.	36% MIN

[illegible]

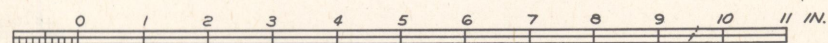
LIST OF SPECIFICATIONS	SPEC NUMBER *	REQUIRE- BY
1 AMMUNITION, EXCEPT SMALL ARMS AMM, GENERAL SPEC FOR	50-0-1	DWG 78-2-143
2		
3 FINISHES, PROTECTIVE, FOR IRON AND STEEL PARTS	57-0-2	DWG 78-2-143
4		
5 METALS, GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	57-136
6 ROD; WELDING, NON-FERROUS (FOR) GAS WELDING	QQ-R-571	DWG 78-2-143
7 SOLDER, BRAZING	QQ-S-551	DWG 78-2-143
8 STEEL, SHEETS AND STRIPS, CARBON AND ALLOY	57-136	DWG 78-2-143
9		
10 WIRE, SOFT IRON AND STEEL, BARE AND COATED	48-5	DWG 78-2-143

NOTICE:-THIS DRAWING SHALL NOT BE USED NOR
REPRODUCED EITHER WHOLLY OR IN PART EXCEPT
WHEN AUTHORIZED IN CONNECTION WITH UNITED
STATES GOVERNMENT PROCUREMENT.

JUNE 13, 1930						CLASS		DIVISION		DRAWING		FILE	
REVISONS						78		E		143			
10 9-15-45						TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED DECIMAL 2 FRACTIONAL 1 ANGULAR 5							
15 11-3-48													
DRG. PERTAINS TO						UPTMAN		TRACER		ENGINEER			
						L.F.S.		FCB		H.E.			
						CHECKER						ENGINEER	
						ACJ		Self C.O.		jenn			
						SUBMITTED:							
						 ORD. ENG., ORD DEPT. U.S.A.							
						EXAMINED:							
						 COL., ORD. DEPT. U.S.A.							
						APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:							
						 COL., ORD. DEPT. U.S.A.							
D						ORDNANCE DEPT. U.S.A.							

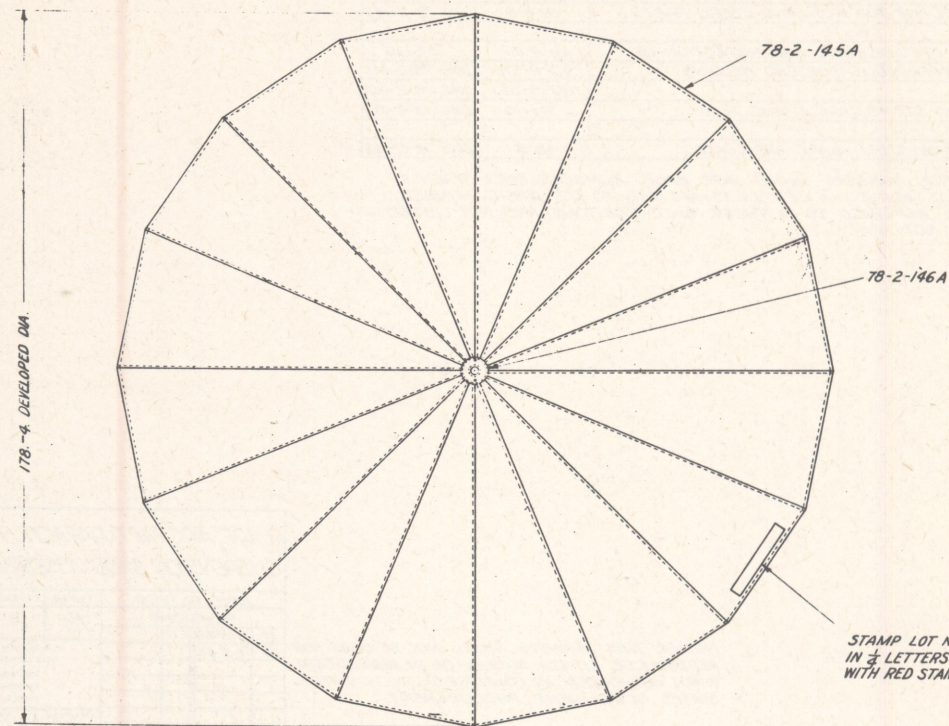
SUPERSEDES 78-2-143 WITHOUT CHANGE NOVEMBER 3 1948

REMOVE ALL BURRS



LIST OF PARTS									
LINE NO	NAME OF PART	NUMBER REQ PER COMPONENT	PIECE-MARK	SIZE OR FORM	MATERIAL KIND	GRADE	SPEC NO	APPROXIMATE UNIT WEIGHT (OUNCES)	REMARKS
1	ASSEMBLY		78-2-144A					19.80	
2	CROWN ASSEMBLY		78-2-146A					.10	
3	SHROUD AND GORE ASSEMBLY		78-2-145A						
4	SPACER AND SHROUD ASSEMBLY		78-2-145B						
5									
6	CORD	1	78-2-145K		COTTON CORD, BRAIDED		50-11-52	.06	
7	EYELET	2	78-2-149E		NON-FERROUS METAL		COMMERCIAL		
8	GORE	16	78-2-145C	4 MOMME	PARACHUTE SILK	CLASS A	50-11-51	.67	
9	PIECE, CROWN	2	78-2-146B		COTTON SHEETING, UNBLEACHED		CCC-S-291	.05	
10	SHROUD	8	78-2-145H		COTTON CORD, BRAIDED		50-11-52	.89	
11	SPACER	1	78-2-145D	SHEET	BINDERBOARD		COMMERCIAL	2.4	
12	TAPE, HEM	1	78-2-145G	TAPE	COTTON TAPE		DDD-T-86	1.50	
13	TWINE	1	78-2-145F	NO.12	COTTON SEINE TWINE		T-T-881	.02	
14					COTTON THREAD		COMMERCIAL		
15					SILK THREAD		V-T-301		(A)
16					INK, RED STAMP-PAD		TT-I-556		
17									

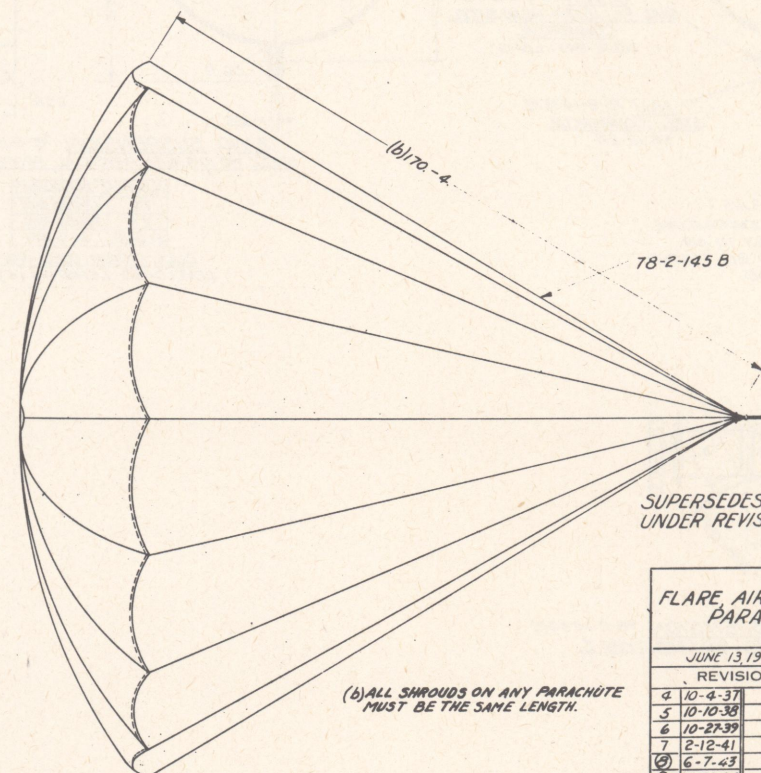
(A) MACHINE TWIST, COMMERCIAL DESIGNATION "D"



ASSEMBLY 78-2-144A10

LINE NO	LIST OF SPECIFICATIONS	SPECIFICATION NUMBER *	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMMUNITION, GENERAL SPEC FOR	50-0-1	DRG 78-2-144
2	SHEETING, COTTON, UNBLEACHED, WIDE	CCC-S-291	DRG 78-2-146
3	SILK, PARACHUTE, PYROTECHNIC	50-11-51	DRG 78-2-145
4	STITCHES, SEAMS, AND STITCHING	DDD-S-751	DRG 78-2-145
5			
6	TEXTILES, TEST METHODS	CCC-T-191	CCC-S-291
7	THREAD, SILK	V-T-301	DRG 78-2-145
8	TWINE, COTTON SEINE	T-T-881	DRG 78-2-145
9	INK, STAMP-PAD	TT-I-556	DRG 78-2-144
10	CORD, COTTON, BRAIDED	50-11-52	DRG 78-2-145
11	TAPE, COTTON, BLEACHED, DYED, OR GREY, GENERAL-USE	DDD-T-86	DRG 78-2-145
12			

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

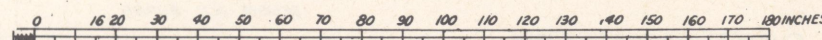


SUPERSEDES OLD TRACING 78-2-144 UNDER REVISION DATE OF OCT 10, 1938

FLARE, AIRCRAFT, PARACHUTE, M8A1 PARACHUTE ASSEMBLY

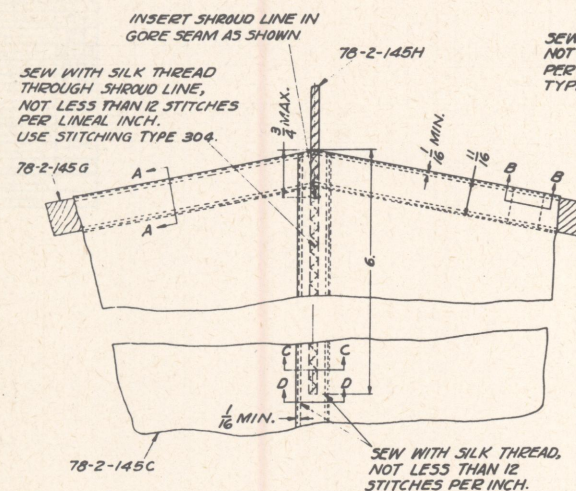
JUNE 13, 1930				CLASS	DIVISION	DRAWING	FILE
REVISIONS				78	2	144	
4	10-4-37						
5	10-10-38						
6	10-27-39						
7	2-12-41						
8	6-7-43						
9	10-21-44						
10	8-15-45						
11	12-13-45						
12	3-25-49						
SUBMITTED:				DFTSMAN	TRACER	ENG. IN CHG.	
				L.F.S.	R.M.D.	W.C.	
				CHECKER	CHECKER	CHIEF DFTSMAN	
				W.C.	C.W.	M.T.	
DRG. PERTAINS TO				EXAMINED:			
				J.D. Smith			
				C.O. ORD. DEPT. U.S.A.			
				APPROVED BY ORDER, CHIEF OF ORDNANCE			
				John G. Burton			
				LT COL. ORD. DEPT. U.S.A.			
				PICATINNY ARSENAL, U.S.A.			

FOR ALTERNATIVE PARACHUTE ASSEMBLY
SEE DRG 78-2-255



ABSOLUTE REVISION (B)

P-25559



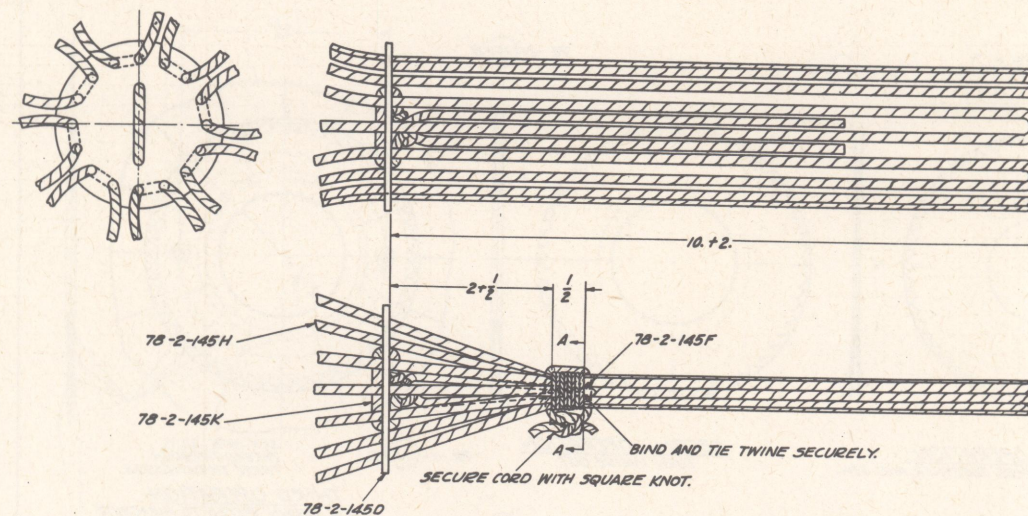
SHROUD AND GORE ASSEMBLY 78-2-145A7

SECTION A-A

SECTION B-B

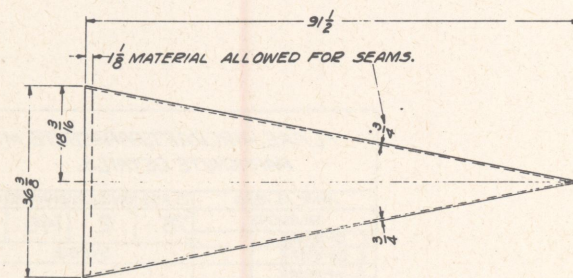
SECTION C-C

SECTION D-D
SEAM TYPE 301-LSC-2
EXCEPT THAT ONE TURNED UNDER EDGE
NEED NOT BE SECURED BY STITCHING.



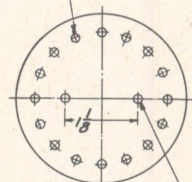
SPACER AND SHROUD ASSEMBLY 78-2-145B

SINGLE KNOT.
SECTION A-A



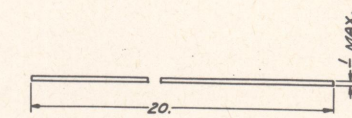
GORE 78-2-145C
PARACHUTE SILK, 4 MOMME, CLASS "A"

PUNCH (16) 5/32 HOLES,
EQUALLY SPACED.

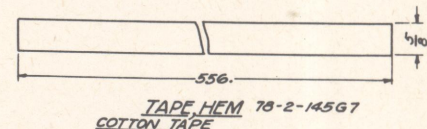


PUNCH (2) 5/32 HOLES.

SPACER 78-2-145D
BINDERBOARD

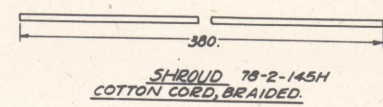


TWINE 78-2-145F
NO. 12 COTTON SEINE TWINE
4 PLYS PER STRAND, 24 LB. BREAKING STRENGTH.

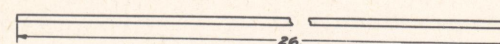


TAPE HEM 78-2-145G7
COTTON TAPE

SUPERSEDES OLD TRACING 78-2-145 UNDER
REVISION DATE OF OCT 10, 1938.



SHROUD 78-2-145H
COTTON CORD, BRAIDED.



CORD 78-2-145K
COTTON CORD, BRAIDED.

NOTICE: THIS DRAWING IS NOT TO BE USED FOR THE DESIGN OF A PARACHUTE WITHOUT THE APPROVAL OF THE U.S. ARMY AIRCRAFT ENGINEERING DEPARTMENT.

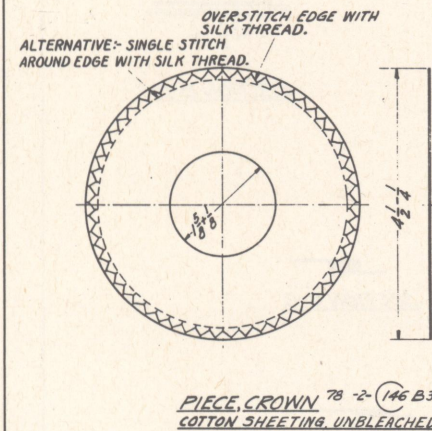
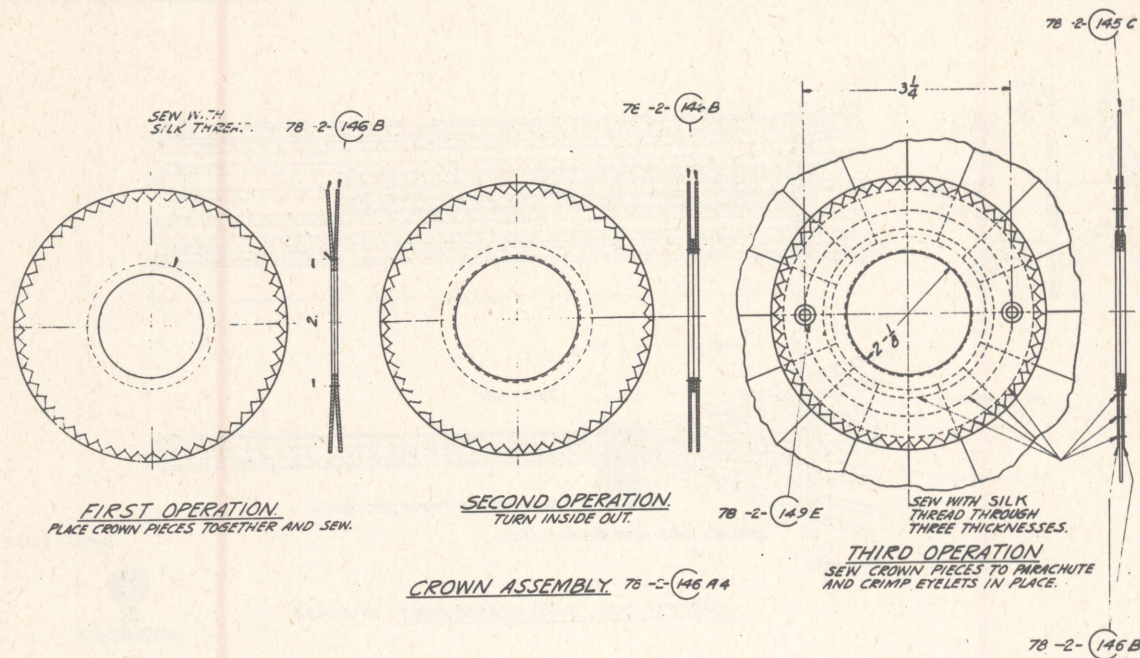
SCALE, INCHES, 5/16, 1/8, 1/16

FLARE, AIRCRAFT, PARACHUTE, M8A1 PARACHUTE DETAILS.				
JUNE 13, 1930.	CLASS	DIVISION	DRAWING	FILE
REVISIONS	78	2	145	
5 10-4-37				
6 10-10-38				
7 10-27-39				
8 2-12-41				
9 6-7-43				
10 10-21-44				
11 8-19-45				
SUBMITTED BY: <i>K. H. H. H.</i>				
DRG. PERTAINS TO 78-2-144				
EXAMINED BY: <i>J. H. H. H.</i>				
APPROVED BY ORDER, CHIEF OF ORDNANCE				
PICATINNY ARSENAL, U. S. A.				

OBSCLETE REVISION 3

P.25560

PHYSICAL PROPERTIES	
Y.P.	
T.S.	
EL-2	
RED	
HT. T.	
BR.	
SCL	
C.C.	

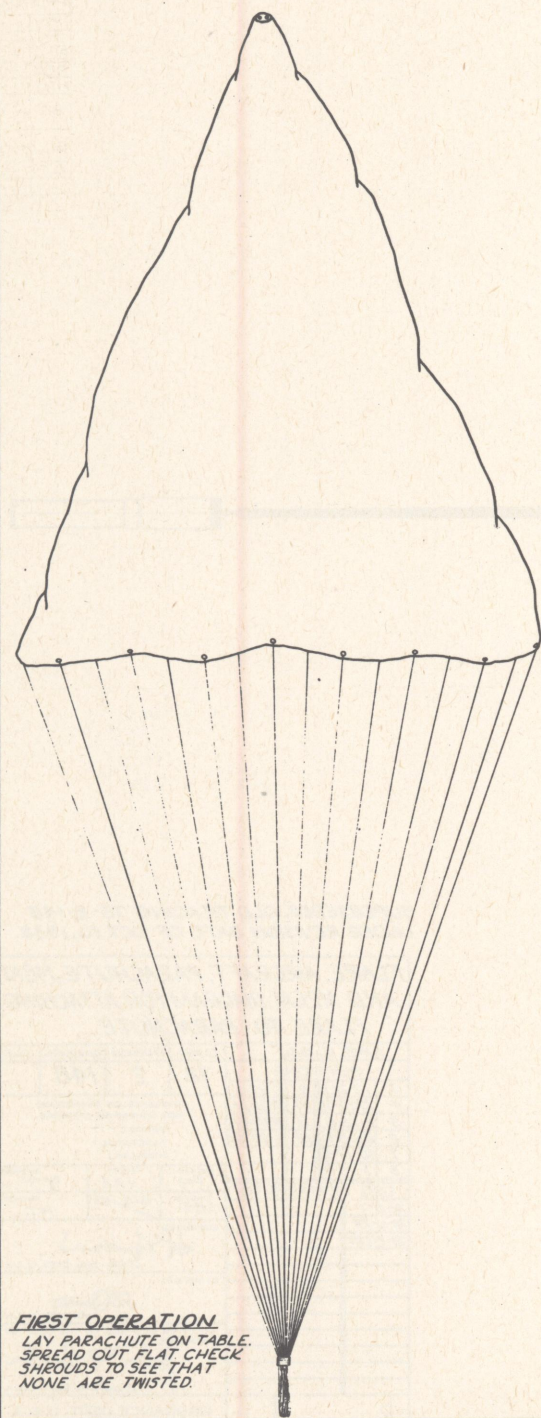


FLARE, AIRCRAFT, PARACHUTE, M8A1 PARACHUTE DETAILS.

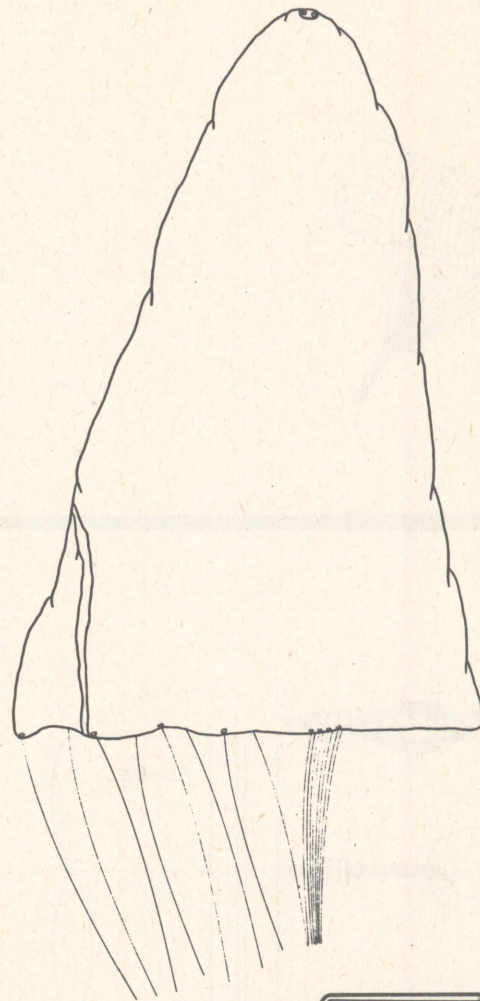
JUNE 13, 1930		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	146	
1	2-9-32				
2	10-4-37				
3	10-11-38				
4	10-15-40				
5	2-12-41				
6	6-7-43				
7	10-21-44				
8	8-15-45				
SYMBOL					
DFTSMAN		TRACER	ENG. IN CHG.		
A.E.R.		A.E.R.	SW		
CHECKER		CHECKER	CHIEF DFTSMAN		
M.T.		F.B.	BY		
SUBMITTED					
DRG. PERTAINS TO		MAJOR	ORD. DEPT. U.S.A.		
78-2-146		EXAMINED			
APPROVED		MAJOR	ORD. DEPT. U.S.A.		
		R. L. Maynard			
		MAJOR	ORD. DEPT. U.S.A.		
D		PICATINNY ARSENAL, U.S.A.			

SCALE, INCHES 1

OBSCLETE REVISION (6)

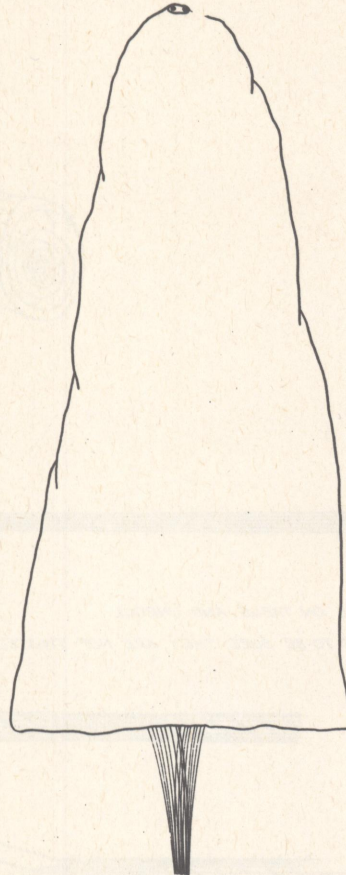


FIRST OPERATION
LAY PARACHUTE ON TABLE.
SPREAD OUT FLAT CHECK
SHROUDS TO SEE THAT
NONE ARE TWISTED.

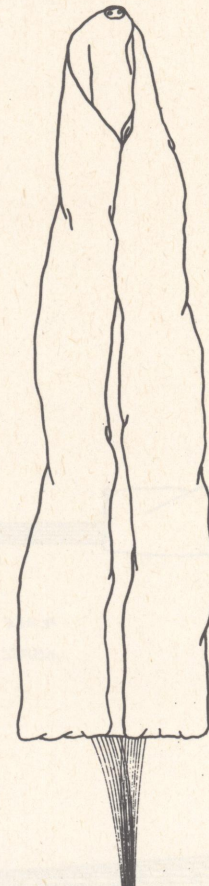


SECOND OPERATION
FOLD EIGHT GORES BACK AND FORTH
BRINGING THE CORRESPONDING
SHROUDS TO THE CENTER.

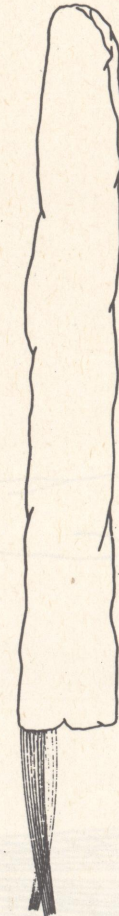
NOTE: GOES MUST BE IN EVEN FOLDS
RUNNING LENGTH OF PARACHUTE.



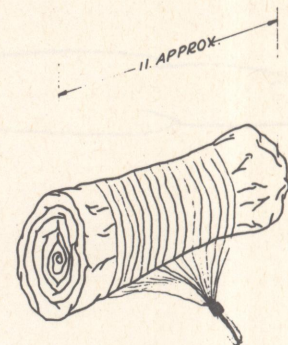
THIRD OPERATION
FOLD REMAINING EIGHT GORES
BACK AND FORTH BRINGING
THE CORRESPONDING SHROUDS
TO THE CENTER.



FOURTH OPERATION
FOLD HALF OF EACH SIDE
OVER TO CENTER.



FIFTH OPERATION
FOLD ONE SIDE OVER
OTHER SIDE.

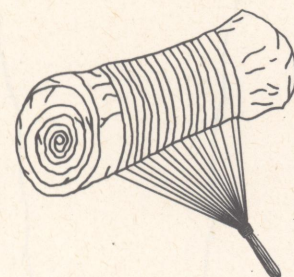


SIXTH OPERATION
STARTING AT SMALL END OF PARACHUTE
ROLL UP IN A COMPACT BUNDLE AND
WRAP IN SOFT WHITE PAPER.

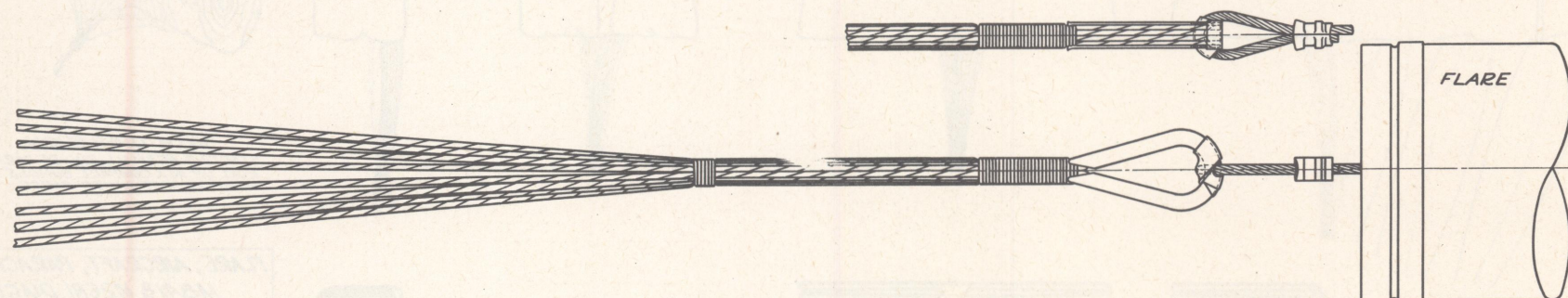
**FLARE, AIRCRAFT, PARACHUTE,
MB41 & M26A1, DIAGRAM FOR
FOLDING PARACHUTE.**

JUNE 13, 1930				CLASS	DIVISION	DRAWING	FILE
REVISIONS				78	2	147	
1	2-9-32	7	6-7-43	TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED DECIMAL 1 FRACTIONAL 2 ANGULAR 2			
2	10-7-37	8	10-21-44				
3	2-12-41	9	8-15-45				
4	6-28-41	10	4-28-47				
5	10-17-43						
6	3-15-43			DRG. PERTAINS TO			
78-2-144				78-2-242			
78-2-242				SUBMITTED			
				EXAMINED			
				APPROVED BY ORDER OF THE CHIEF OF ORDNANCE			
				ORDNANCE DEPT., U. S. A.			

NOTE: THIS DIAGRAM FOR USE OF MANU-
FACTURER ONLY. FOR FOLDING DIAGRAM
WHICH SHOWS PARACHUTE AS INSERTED
IN FLARE SEE DRAWING 78-2-143.



PLACE PARACHUTE ON TABLE AND UNROLL.
INSPECT SHROUDS TO BE SURE THEY ARE NOT TWISTED.



FLARE, AIRCRAFT, PARACHUTE, M8AI
AND M26AI. DIAGRAM FOR ATTACHING
FLARE TO PARACHUTE.

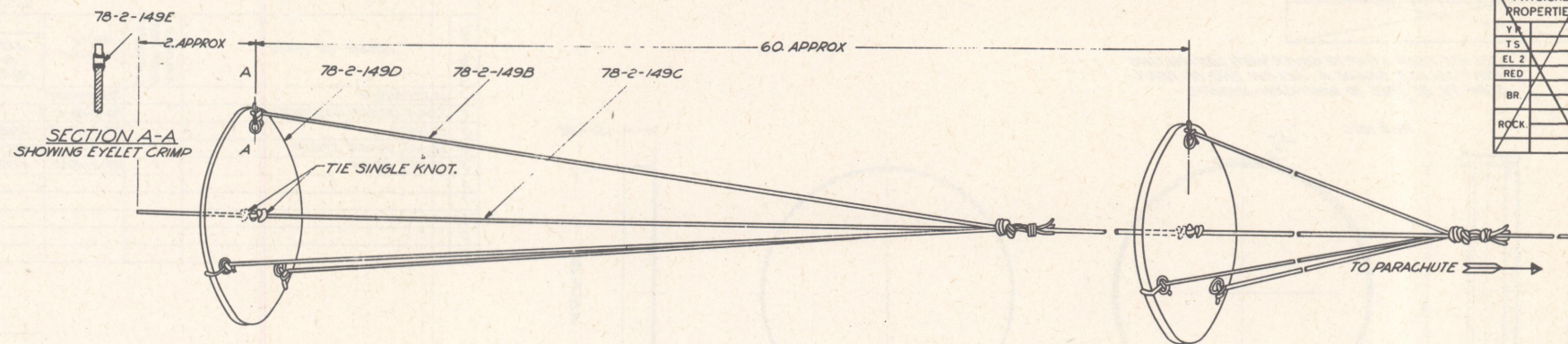
SUPERSEDES OLD TRACING 78-2-148
UNDER REVISION DATE OF OCT. 10, 1938

FLARE, AIRCRAFT, PARACHUTE, M8AI
AND M26AI. DIAGRAM FOR ATTACHING
FLARE TO PARACHUTE.

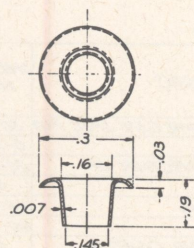
JUNE 13, 1930				CLASS	DIVISION	DRAWING	FILE			
REVISIONS				78	2	148				
3	12-22-38	9	6-22-43	TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED DECIMAL ± FRACTIONAL ± ANGULAR ±						
4	10-10-38	10	10-21-44							
5	2-12-41	11	8-15-45							
6	6-28-41	12	4-28-47							
7	10-17-42									
8	3-15-43									
DRG. PERTAINS TO								DYKMAN	TRACER	ENGINEER
78-0-7								CHICK	J.A.F.	ENGINEER
78-0-24				SUBMITTED						
78-2-289				EXAMINED						
				APPROVED BY ORDER OF THE CHIEF OF ORDNANCE						
				ORDNANCE DEPT. U.S.A.						

P-25561

HEAT TREATMENT AND FINAL FINISH

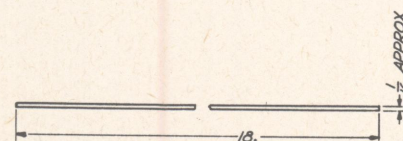


PHYSICAL PROPERTIES	
Y	
TS	
EL 2	
RED	
BR	
ROCK	

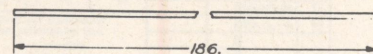


EYELET 78-2-149E3
COMMERCIAL NON-FERROUS METAL.

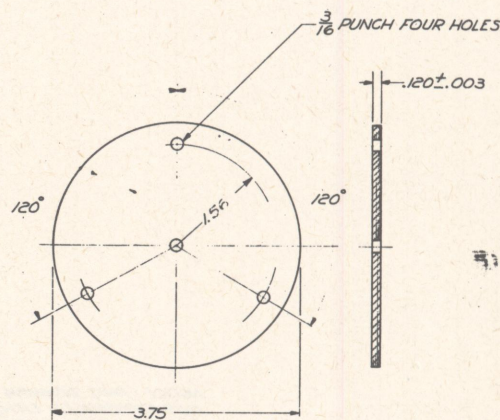
ASSEMBLY 78-2-149A5
METHOD OF ATTACHING PILOT
DISC TO PULL OUT CORD.



CORD, PILOT DISC 78-2-149B3
TWISTED SILK CORD, MINIMUM BREAKING STRENGTH 30 LBS COMMERCIAL



CORD, PULL OUT 78-2-149C5
NO. 36 COTTON SEINE TWINE



DISC, PILOT 78-2-149D9
BOARD, BINDERS
DIAMETER DIMENSIONS CONTROL
TOOL MANUFACTURE.

LIST OF PARTS

LINE NO	NAME OF PART	NUMBER REQD PER COMPONENT	PIECE MARK	SIZE OR FORM	MATERIAL	GRADE	SPEC NO.	APPROXIMATE WEIGHT (GRAINS)	APPROX GROSS WT OF RAW STOCK PER 1000 ASSEMBLIES	REMARKS
1	ASSEMBLY		78-2-149A							
2										
3	CORD, PILOT DISC	6	78-2-149B	1/16 DIA	TWISTED SILK CORD	30 LB MINIMUM BREAKING STRENGTH	COMMERCIAL			
4	CORD, PULL OUT	2	78-2-149C	NO. 36	COTTON SEINE TWINE		T-7-881			
5	DISC, PILOT	2	78-2-149D		BINDER'S BOARD		UU-B-536			
6	EYELET	6	78-2-149E		NON-FERROUS METAL		COMMERCIAL			

LIST OF SPECIFICATIONS

LINE NO.	SPECIFICATION NUMBER *	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM. GENERAL SPEC FOR	50-0-1 DWG 78-2-149
2		
3	TWINE, COTTON SEINE	T-7-881 DWG 78-2-149
4	BOARD, BINDERS	UU-B-536 DWG 78-2-149
5	PAPER, GENERAL SPECIFICATIONS	UU-P-31 UU-B-536

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

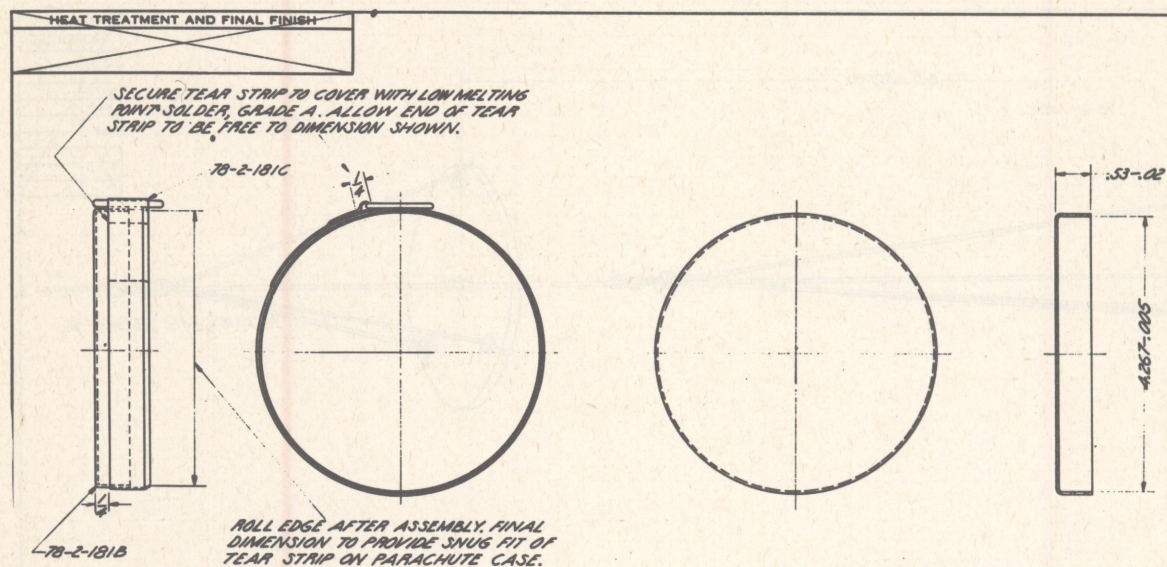
NOTICE:- THIS DRAWING SHALL NOT BE USED NOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

FLARE, AIRCRAFT, PARACHUTE, M8A1 PARACHUTE PILOT DISC ASSEMBLY AND DETAILS.

FEBRUARY 9, 1932	CLASS	DIVISION	DRAWING	FILE
REVISIONS	78	2	149	
8 8-15-45				
9 11-3-48				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED				
DECIMAL 2				
FRACTIONAL 2				
ANGULAR 2				
DRG. PERTAINS TO				
78-0-7				
SUBMITTED				
ORD. ENG. ORD. DEPT. U.S.A.				
EXAMINED				
COL., ORD. DEPT. U.S.A.				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE				
COL., ORD. DEPT. U.S.A.				
ORDNANCE DEPT. U.S.A.				

SUPERSEDES 78-2-149 WITHOUT CHANGE NOVEMBER 3, 1948

SCALE, INCHES, 1/16



LINE NO	NAME OF PART	NUMBER REQD PER COMPONENT	PIECE MARK	LIST OF PARTS				APPROX WEIGHT (OUNCES)	APPROX LENGTH (INCHES)	REMARKS
				SIZE OR FORM	MATERIAL	GRADE	SPEC NO			
1	ASSEMBLY		78-2-181A					3.10		
2	TEAR STRIP ASSEMBLY		78-2-181C					.68		
3	COVER	1	78-2-181B	SHEET	TERNE-PLATE (LONG TERNE), TYPE I, CLASS A	2	QQ-T-191	2.42		
4	RING, TEAR STRIP	1	78-2-181E	WIRE, TYPE I	GALVANIZED STEEL	WD 1020	AB-5	.05		
5	STRIP, TEAR	1	78-2-181D	STRIP	TERNE-PLATE (LONG TERNE), TYPE I, CLASS A	2	QQ-T-191	.63		
6					FLUX, SOLDERING, PASTE		D-F-505			
7					SOLDER, TIN-LEAD	COMP Sn 50	QQ-S-571			
8					SOLDER, LOW MELTING POINT	A	57-98			
9										
10										

LINE NO	LIST OF SPECIFICATIONS	SPECIFICATION NUMBER *	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM, GEN SPEC FOR	50-0-1	DWS 78-2-181
2	FLUX, SOLDERING, PASTE	D-F-505	DWS 78-2-181
3	METALS, GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	QQ-T-191
4	SOLDER, LOW MELTING POINT	57-98	DWS 78-2-181
5	SOLDER, SOFT (TIN, TIN-LEAD, AND LEAD-SILVER)	QQ-S-571	DWS 78-2-181
6	TERNE-PLATE (LONG TERNE)	QQ-T-191	DWS 78-2-181
7	WIRE, SOFT IRON AND STEEL, BARE AND COATED	AB-5	DWS 78-2-181
8			
9			
10			

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON SHALL NOT APPLY.

FLARE, AIRCRAFT, PARACHUTE, M8A1
COVER ASSEMBLY AND DETAILS

OCTOBER 10, 1938

REVISIONS

3	10-2-40	
4	11-3-40	

CLASS 78 DIVISION 2 DRAWING 181

TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED

DECIMAL ± FRACTIONAL ± ANGULAR ±

ORG. PERTAINS TO

DESIGNED BY: J.M.G. ENGINEER

CHECKED BY: A.C.J. ENGINEER

SUBMITTED BY: [Signature]

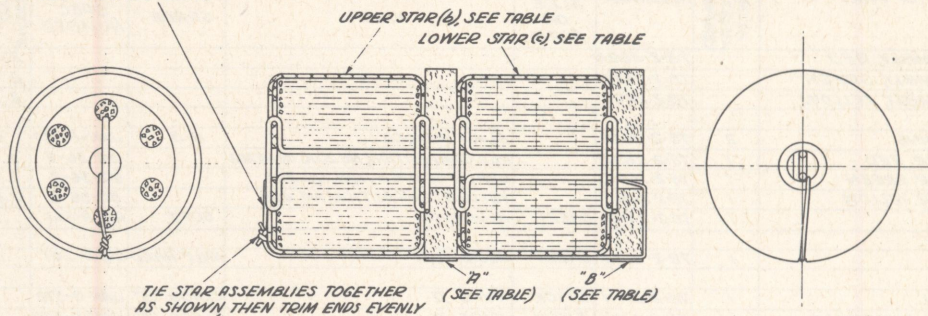
EXAMINED BY: [Signature]

APPROVED BY ORDER OF THE CHIEF OF ORDNANCE: [Signature]

ORDNANCE DEPT. U.S.A.

(cc) STRING TYING 78-2-268G4
WRAPPING COTTON TWINE, 4 PLY
12 INCHES LONG

(cc) TYING STRING MAY BE OMITTED, IF DESIRED, OR ASSEMBLY MAY BE
HELD TOGETHER BY USING TWO STRIPS OF ADHESIVE TAPE, COMMERCIAL,
APPROX 3/8 BY 1 1/2, APPLIED PARALLEL TO AXIS, ON OPPOSITE SIDES OF ASSEMBLY.



ILLUMINANT ASSEMBLY (a)

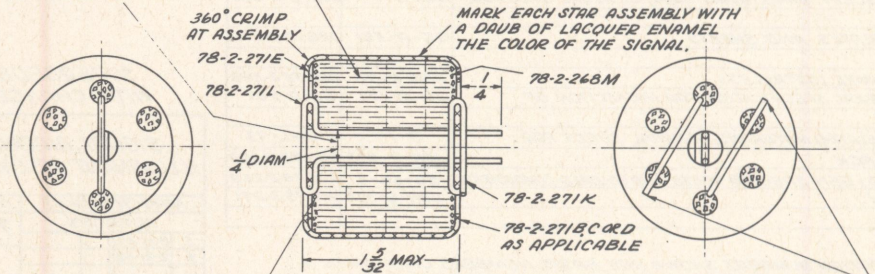
(a) ILLUMINANT ASSEMBLY	(b) UPPER STAR	"A"	(c) LOWER STAR	"B"
PIECEMARK	PIECEMARK	COLOR	PIECEMARK	PIECEMARK
78-2-268A4	78-2-268H	RED	78-2-270G	78-2-268K
78-2-268B4	78-2-268L	GREEN	78-2-270X	78-2-268K
78-2-268C4	78-2-268L	YELLOW	78-2-270G	78-2-268L
78-2-268D4	78-2-268H	RED	78-2-270G	78-2-268K
78-2-268E4	78-2-268H	RED	78-2-270G	78-2-268L
78-2-268F4	78-2-268K	GREEN	78-2-270X	78-2-268L

NOTE: WAD CUSHIONING, 78-2-270X MAY BE SUBSTITUTED FOR WAD, CUSHIONING, 78-2-270G, IF DESIRED.

CHARGE, STAR (e)
PRESS AT 10,000 LBS PRESSURE FOR RED AND YELLOW STAR
PRESS AT 5,000 LBS PRESSURE FOR GREEN STAR

(e) PIECEMARK	COLOR	COMPOSITION	APPROX WT OZ
78-2-268N3	RED	RED COMPOSITION NO. 201C OR NO. 202	1.66
78-2-268P5	GREEN	GREEN COMPOSITION NO. 302	2.15
78-2-268Q5	YELLOW	YELLOW COMPOSITION NO. 409	1.66

A PAPER SLEEVE, 1/2 DIA AND 1/2 LONG
MAY BE PLACED AROUND THE TWO
LEGS OF THE STAR QUICKMATCH
AFTER ASSEMBLY TO THE DISC.



CHARGE, PRIMING 78-2-268M5
APPROX .03 OZ BLACK POWDER, GRADE "A-3"
PRESS AT 10,000 LBS TOTAL PRESSURE FOR RED AND YELLOW STAR.
PRESS AT 5,000 LBS TOTAL PRESSURE FOR GREEN STAR.

STAR ASSEMBLY (d)

(d) STAR ASSEMBLY	STAR	CANDLE POWER MIN	BURNING TIME	COLOR VALUE
78-2-268H6	RED	25,000	7 TO 13 SEC	.42 MIN RED
78-2-268K6	GREEN	20,000	7 TO 13 SEC	.36 MIN GREEN
78-2-268L6	YELLOW	20,000	7 TO 13 SEC	.046 MIN YELLOW 17 MIN. 2.1 MAX RED 42 MIN. 16 MAX GREEN

LIST OF PARTS

LINE NO.	NAME OF PART	NUMBER REQD PER COMPONENT	PIECE-MARK	SIZE OR FORM	MATERIAL	GRADE	SPEC. NUMBER	APPROXIMATE WEIGHT (OUNCES)	APPROX GROSS WT OF RAW STOCK PER 1000 ASSEMBLIES	REMARKS
1	ILLUMINANT ASSEMBLY, RED-RED		78-2-268A					3.84		
2	ILLUMINANT ASSEMBLY, GREEN-GREEN		78-2-268B					5.02		
3	ILLUMINANT ASSEMBLY, YELLOW-YELLOW		78-2-268C					3.84		
4	ILLUMINANT ASSEMBLY, RED-GREEN		78-2-268D					4.43		
5	ILLUMINANT ASSEMBLY, RED-YELLOW		78-2-268E					3.84		
6	ILLUMINANT ASSEMBLY, GREEN-YELLOW		78-2-268F					4.43		
7	STAR ASSEMBLY, RED	(m)	78-2-268H					1.86		
8	STAR ASSEMBLY, GREEN	(m)	78-2-268K					2.35		
9	STAR ASSEMBLY, YELLOW	(m)	78-2-268L					1.86		
10										
11	CHARGE, PRIMING	2	78-2-268M		BLACK POWDER	A-3	JAN-P-223	.03		
12	CHARGE, STAR, RED	1	78-2-268N		RED COMPOSITION, NO. 201C OR 202		50-56-2	1.66		
13	CHARGE, STAR, GREEN	1	78-2-268P		GREEN COMPOSITION, NO. 302		50-56-2	2.15		
14	CHARGE, STAR, YELLOW	1	78-2-268Q		YELLOW COMPOSITION, NO. 409		50-56-2	1.66		
15	CUP, STAR, RED	1	78-2-271B	SHEET	ALUMINUM	SOFT	QQ-A-561	.11		
16	CUP, STAR, GREEN	1	78-2-271C	SHEET	ALUMINUM	SOFT	QQ-A-561	.11		
17	CUP, STAR, YELLOW	1	78-2-271D	SHEET	ALUMINUM	SOFT	QQ-A-561	.11		
18										
19	DISC	1	78-2-271E	SHEET	ALUMINUM	HALF-HARD	QQ-A-561	.02		
20										
21	QUICKMATCH, CONNECTOR	1	78-2-271K	STICK	TYPE II		CLASS "B" JAN-Q-378	.01		(S)
22	QUICKMATCH, STAR	1	78-2-271L	STICK	TYPE II		CLASS "B" JAN-Q-378			
23										
24	STRING, TYING	1	78-2-268G	CONE	COTTON		4 PLY T-T-871			(cc)
25	WAD, CUSHIONING	(p)	78-2-270X		FELT, HAIR		TYPE II, CLASS B B-144	.06		(f)
26	WAD, CUSHIONING	(p)	78-2-270G		FELT, HAIR		TYPE II, CLASS B B-144	.06		(f)
27					LACQUER ENAMEL, RED, GREEN & YELLOW		JAN-L-73			
28										

(m) ONE FOR TWO COLOR SIGNALS OR TWO FOR SINGLE COLOR SIGNALS.
(n) SEE ILLUMINANT ASSEMBLY TABLE FOR NUMBER REQUIRED.
(p) MATERIAL EQUAL TO HAIR FELT, TYPE II, CLASS "B", SPEC. B-144, MAY BE USED.
(S) OPTIONAL ON YELLOW AND RED STAR ASSEMBLIES.

LINE NO.	LIST OF SPECIFICATIONS	SPEC NUMBER	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM, GENERAL SPEC FOR	50-0-1	DRG 78-2-268
2			
3	ALUMINUM, PLATES AND SHEETS	QQ-A-561	DRG 78-2-271
4			
5	FELT, HAIR, FOR PACKING	B-144	DRG 78-2-270
6	LACQUER ENAMEL, LUSTRELESS	JAN-L-73	DRG 78-2-268
7	METALS; GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	QQ-A-561
8	PAINTS AND RELATED MATERIALS, GENERAL SPECS FOR	3-1	JAN-L-73
9	POWDER, BLACK	JAN-P-223	DRG 78-2-268
10	PYROTECHNICS; GEN SPEC FOR WHITE AND COLORED COMPOSITIONS	50-56-2	DRG 78-2-268
11	QUICKMATCH	JAN-Q-378	DRG 78-2-271
12			
13	TWINE; COTTON, WRAPPING	T-T-871	DRG 78-2-268
14			

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0 1 2 3 4 5 IN.

LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	ASSEMBLY	78-2-268
2	DETAILS	78-2-270
3	DETAILS	78-2-271

THIS DRAWING IS FOR THE FOLLOWING
AIRCRAFT SIGNALS:

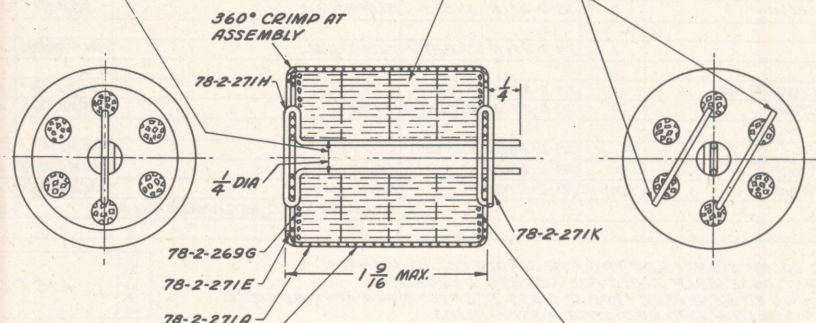
DOUBLE STAR
RED-RED AN-M38A1 RED-GREEN AN-M41A1
GREEN-GREEN AN-M39A1 RED-YELLOW AN-M40A1
YELLOW-YELLOW AN-M38A1 GREEN-YELLOW AN-M42A1
SUPERSEDES 78-2-268 AND 78-2-268A
WITH CHANGE AUG. 15, 1945.

SIGNAL, AIRCRAFT, DOUBLE-STAR ILLUMINANT ASSEMBLY AND DETAILS.

MARCH 9, 1942		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	268	
5	8-15-45				
6	2-21-49				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED					
DECIMAL ±					
FRACTIONAL ±					
ANGULAR ±					
DRG. PERTAINS TO					
SUBMITTED					
EXAMINED					
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE					
C. S. Reed					
COL., ORDN. DEPT. U.S.A.					
ORD. DEPT. U.S.A.					
ORDNANCE DEPT. U.S.A.					

(b) PIECEMARK	COLOR	COMPOSITION	APPROX WT OZ
78-2-269D5	RED	RED COMPOSITION NO.201C OR NO.202	2.
78-2-269E5	GREEN	GREEN COMPOSITION NO. 302	2.85
78-2-269F5	YELLOW	YELLOW COMPOSITION NO. 409	1.87

A PAPER SLEEVE $\frac{1}{4}$ DIA. $\times \frac{3}{8}$ LONG MAY BE PLACED AROUND THE TWO LEGS OF THE QUICKMATCH AFTER ASSEMBLY TO THE DISC.



MARK EACH STAR ASSEMBLY WITH A DAUB OF LACQUER ENAMEL THE COLOR OF THE SIGNAL.

STAR ASSEMBLY (a)

(a) STAR ASSEMBLY	STAR	CANDLE POWER	BURNING TIME	COLOR VALUE	COLOR VALUE
PIECEMARK	COLOR	MIN		MIN	MAX
78-2-269A6	RED	25,000	7 TO 13. SEC	.A2	
78-2-269B6	GREEN	25,000	7 TO 13. SEC	.36	
78-2-269C6	YELLOW	25,000	7 TO 13. SEC	.046	

CHARGE STAR (6)
PRESS AT 10,000 LBS TOTAL PRESSURE FOR RED & YELLOW STAR
PRESS AT 5,000 LBS TOTAL PRESSURE FOR GREEN STAR

THE ENDS OF THE CONNECTOR
QUICKMATCH MAY BE TUCKED INTO
THE HOLES IN THE STAR CUP.

CHARGE, PRIMING 78-2-26965
APPROX .03 OZ BLACK POWDER, GRADE "A-3"

PRESS AT 10,000 LBS TOTAL PRESSURE
FOR RED AND YELLOW STAR.
PRESS AT 5,000 LBS TOTAL PRESSURE
FOR GREEN STAR.

LIST OF PARTS

[illegible]

(w) OPTIONAL ON YELLOW AND RED STAR ASSEMBLIES.

LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	ASSEMBLY	78-2-26
2	DETAILS	78-2-27
3		

THIS DRAWING IS FOR THE FOLLOWING
AIRCRAFT SIGNALS:-

SINGLE STAR

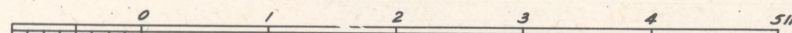
RED AN-M43AI
GREEN AN-M45AI
YELLOW AN-M44AI

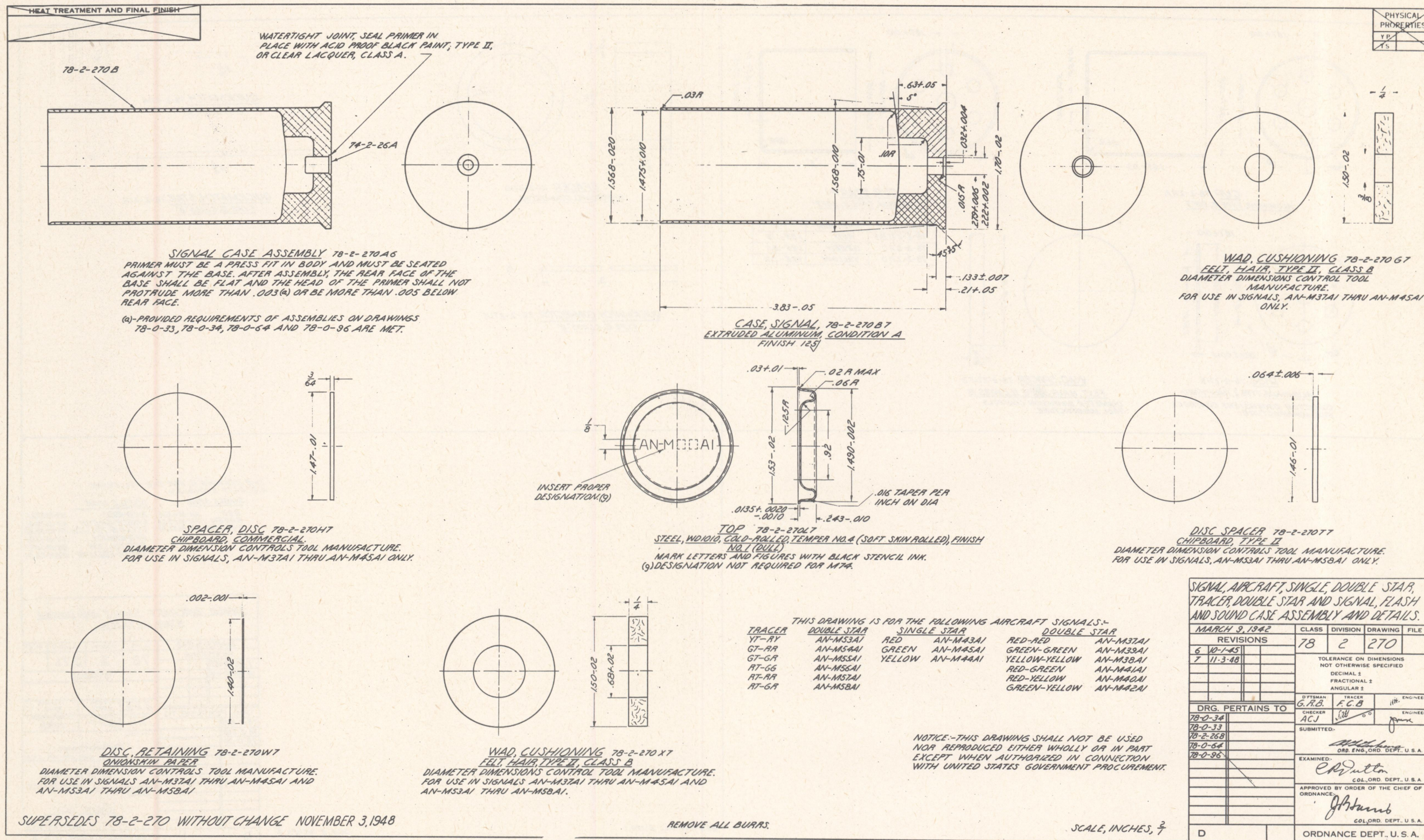
*SUPERSEDES 78-2-269
WITH CHANGE AUG.15,1945*

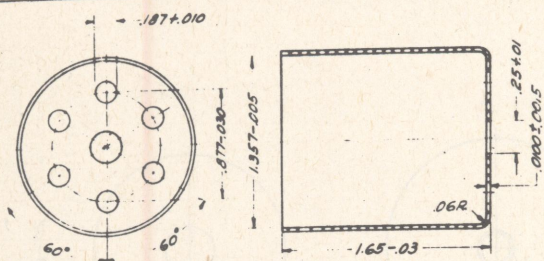
*SIGNAL, AIRCRAFT, SINGLE-STAR
ILLUMINANT ASSEMBLY AND DETAILS*

MARCH 9, 1942		CLASS		DIVISION		DRAWING		FIL.	
REVISONS		78		2		269			
5 8-15-45		TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED							
6 2-21-49									
DRG. PERTAINS TO		D'TSSMAN		TRACER		ENGINE			
		CHECKER		G.W.A.		HARD ENGIN.		SP. 1700	
		SUBMITTED:							
		EXAMINED:				ET. COL.,		PROD. DEPT. U. S.	
						ORD. DEPT. U. S.			
		APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:							
						COL., ORD. DEPT. U. S.			
D				ORDNANCE DEPT. U. S. A.					

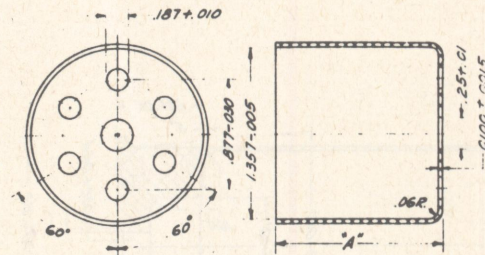
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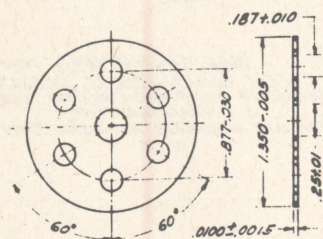


CUP 78-2-271A
ALUMINUM, TYPE 2, SOFT

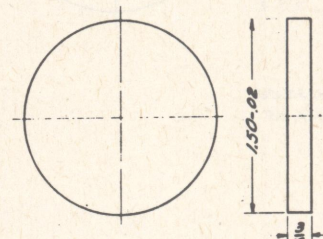


CUP STAR (A)
ALUMINUM, TYPE 2, SOFT

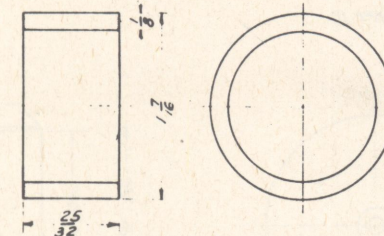
(A) PIECE MARK	STAR COLOR	"A"
78-2-271B1	RED	1.35±.19
78-2-271C	GREEN	1.25±.03
78-2-271D	YELLOW	1.25±.03



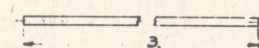
DISC 78-2-271E
ALUMINUM, TYPE 2, HALF-HARD
DIAMETER DIMENSIONS CONTROLS
TOOL MANUFACTURE.



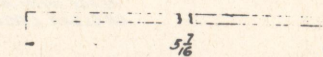
WAD, SPACER 78-2-271F2
FELT, HAIR, TYPE II, CLASS B
DIAMETER DIMENSION CONTROLS
TOOL MANUFACTURE.



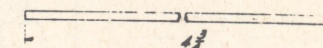
SPACER 78-2-271G
CHIPBOARD, COMMERCIAL



QUICKMATCH, CONNECTOR 78-2-271K
TYPE II, CLASS "B"



QUICKMATCH, STAR 78-2-271H
TYPE II, CLASS "B"



QUICKMATCH, STAR 78-2-271L
TYPE II, CLASS "B"

THIS DRAWING IS FOR THE FOLLOWING
AIRCRAFT SIGNALS.

SINGLE STAR

RED AN-M43A1
GREEN AN-M43A1
YELLOW AN-M44A1

DOUBLE STAR

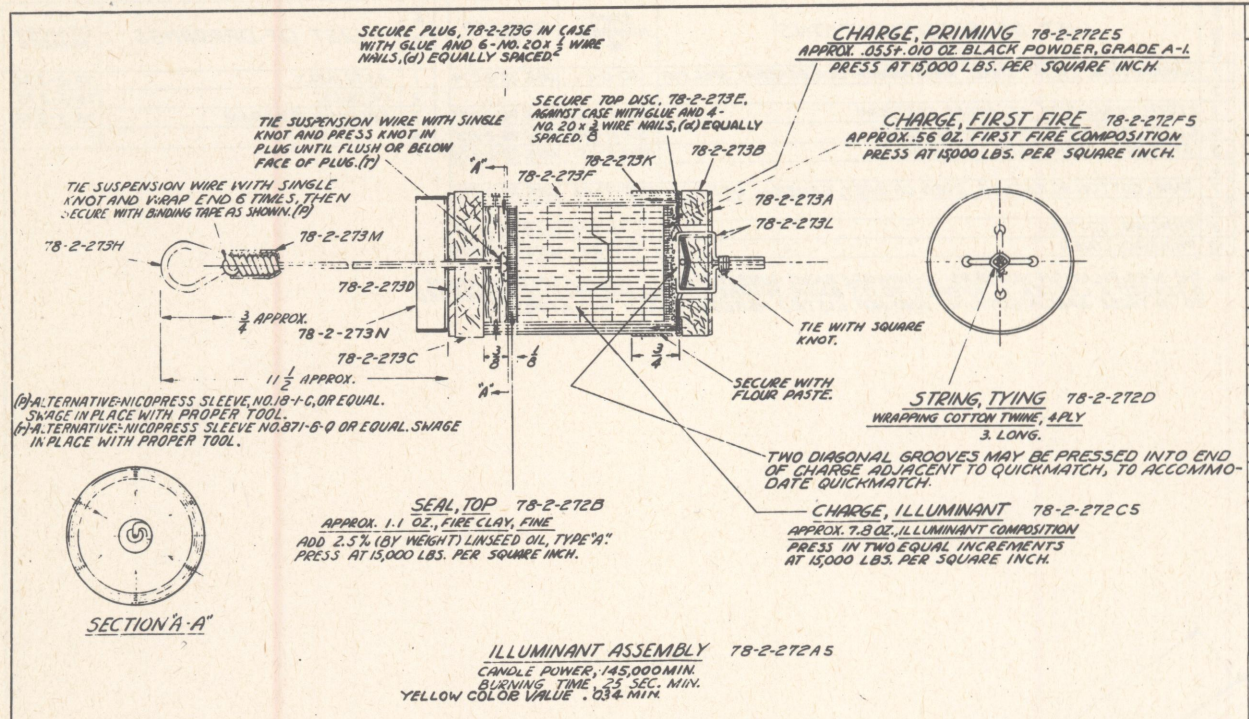
RED-RED AN-M57A1
GREEN-GREEN AN-M53A1
YELLOW-YELLOW AN-M53A1
RED-GREEN AN-M41A1
RED-YELLOW AN-M40A1
GREEN-YELLOW AN-M42A1

**SIGNAL, AIRCRAFT, SINGLE AND DOUBLE
STAR, DETAILS.**

MARCH 9, 1942		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	271	
1 1578-43		SYMBOL			
2 1578-44					
DRG. PERTAINS TO		FORM	INTEL	TYPE	
78-2-269		78-2-269	78-2-269	78-2-269	
78-2-268		78-2-268	78-2-268	78-2-268	
78-0-34		78-0-34	78-0-34	78-0-34	
APPROVED BY		APPROVED BY			
R. A. Butler Jr.		R. A. Butler Jr.			
APPROVED BY		APPROVED BY			
S. A. Butler Jr.		S. A. Butler Jr.			
ORDNANCE DEPT. U. S. A.		ORDNANCE DEPT. U. S. A.			

REMOVE ALL BURES

SCALE, INCHES, 1/2



LINE NO.	LIST OF SPECIFICATIONS	SPEC. NUMBER	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMMUNITION, GENERAL SPEC. FOR	50-0-1	DRG. 78-2-272
2			
3	PYROTECHNICS, GEN SPEC FOR WHITE AND COLORED COMPOSITIONS	AXS-1688	DRG. 78-2-272
4			
5	BOXBOARD (FOR USE IN AMMUNITION)	50-11-79	DRG. 78-2-273
6			
7	FINISHES, PROTECTIVE FOR IRON AND STEEL PARTS	57-0-2	DRG. 78-2-272
8	CLAY, FIRE	HH-C-451	DRG. 78-2-272
9			
10	GLUE (FOR USE IN THE LOADING OF AMMUNITION)	3-102	DRG. 78-2-272
11	FELT, PRESSED	B-15	DRG. 78-2-273
12			
13	METALS; GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	57-136
14			
15	OIL; LINSEED, BOILED	JJJ-O-331	DRG. 78-2-272
16			
17	PLY WDG., FLAT PANEL	82-17	DRG. 78-2-273
18	POWDER, BLACK	50-14-1	DRG. 78-2-272
19	QUICKMATCH	50-14-5	DRG. 78-2-273
20			
21	STEEL, CARBON AND ALLOY; SHEETS AND STRIPS	57-136	DRG. 78-2-273
22			
23	TWINE; COTTON, WRAPPING	T-T-871	DRG. 78-2-272

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LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	ILLUMINANT ASSEMBLY	78-2-272
2	DETAILS	78-2-273
3		

LIST OF PARTS									
LINE NO.	NAME OF PART	NUMBER REQUIRED PER COMPONENT	PIECEMARK	SIZE OR FORM	MATERIAL	GRADE	SPEC. NUMBER	APPROXIMATE UNIT WEIGHT (POUNCES)	REMARKS
1	ILLUMINANT ASSEMBLY		78-2-272A						
2	CASE	1	78-2-273F	SHEET	BOXBOARD		50-11-79	1.28	
3	CHARGE, FIRST FIRE	1	78-2-272F		FIRST FIRE COMPOSITION		AXS-1688	.56	
4	CHARGE, ILLUMINANT	1	78-2-272C		COMPOSITION NO. 101B		AXS-1688	7.8	
5	CHARGE, PRIMING	1	78-2-272E		BLACK POWDER	A-1	50-14-1	.06	
6	WIRE, SUSPENSION	1	78-2-273H	WIRE	SASH CORD, UNCOILED IRON, THINNED OR GALV.		COMMERCIAL		(S)
7	CONTAINER	1	78-2-273N	SHEET	BOXBOARD		50-11-79		(W)
8	DISC	1	78-2-273D	STRIP	STEEL	WD 1010	57-136	2.24	(U)
9	DISC, QUICKMATCH	1	78-2-273A	STRIP	STEEL	WD 1010	57-136	1.12	(U)
10	DISC, TOP	1	78-2-273E	SHEET	CHIPBOARD		COMMERCIAL		
11	CONTAINER, ALTERNATIVE	2	78-2-273P	SHEET	BOXBOARD		50-11-79		(X)
12	PLUG	1	78-2-273G		PLYWOOD	TYPE I	82-17		
13									
14	QUICKMATCH	2	78-2-273L		TYPE II	CLASS "A"	50-14-5		
15									
16	SEAL, TOP	1	78-2-272B		FIRE CLAY	"F"	HH-C-451	1.1	
17	SPACER	1	78-2-273C		FELT, PRESSED	NO. 10	B-15	.32	
18	SPACER, QUICKMATCH	1	78-2-273B		FELT, PRESSED	NO. 10	B-15	.32	
19	STRING, TYING	1	78-2-272D	CONE	WRAPPING COTTON TWINE	4 PLY	T-T-871		
20									
21	BAND, REINFORCING	1	78-2-273K	SPOOL	CRIMLINE		COMMERCIAL		
22	TAPE, BINDING	1	78-2-273M	SPOOL	ADHESIVE TAPE		COMMERCIAL		(Q)
23					FLOUR PASTE		COMMERCIAL		
24					GLUE		3-102		
25		4	NO. 20X 1/2 LG.		NAILS, FLAT HEAD, STEEL WIRE		COMMERCIAL		(J)
26		6	NO. 20X 1/2 LG.		NAILS, FLAT HEAD, STEEL WIRE		COMMERCIAL		(A)
27					OIL, LINSEED	TYPE "A"	JJJ-O-331		

(Q) NOT USED WHEN NICOPRESS SLEEVE, NO. 18-1-C, OR EQUAL IS USED.

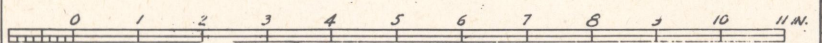
(S) - ALTERNATIVE MATERIAL - BRAIDED CARBON STEEL CABLE, GALVANIZED, COMMERCIAL, COMPOSED OF 2 OR MORE WIRES AND COTTON CENTER. BREAKING STRENGTH - 100 LBS., MIN.

(W) - PROTECTIVE FINISH: TYPE I, CLASS T5, B5 OR B6C SPEC. 57-0-2.

(X) - NOT REQUIRED WHEN ALTERNATIVE CONTAINER, 78-2-273P, IS USED.

(Y) - NOT REQUIRED WHEN CONTAINER, 78-2-273N, IS USED.

(Q) ALTERNATIVE: - 4-1/2 (1/8 DIA. ROUND OR .02X .05 FLAT) WIRE STAPLES, COMMERCIAL



SHELL, ILLUMINATING, M83A1, FOR 60 MM MORTARS. ILLUMINANT ASSEMBLY AND DETAILS

APRIL 9, 1942

REVISIONS

1	5-24-43	
2	6-12-43	
3	12-2-43	
4	2-27-45	
5	8-15-45	

SYMBOL

DRG. PERTAINS TO

75-14-350

CHECKER SAG

SUBMITTED

EXAMINED

APPROVED BY ORDER OF THE CHIEF OF ORDNANCE

ORDNANCE DEPT. U. S. A.

LIST OF PARTS										LIST OF SPECIFICATIONS			LIST OF DRAWINGS		
LINE NO.	NAME OF PART	NUMBER REQ'D PER COMPONENT	PIECE-MARK	MATERIAL			SPEC. NUMBER	APPROXIMATE WEIGHT (OUNCES)	APPROX. GROSS WT. OF RAW STOCK PER 1000 ASSEMBLIES	REMARKS	SPEC. NUMBER *	REQUIRED BY	LINE NO.	DRAWING NUMBER	
				SIZE OR FORM	KIND	GRADE									
1	PARACHUTE ASSEMBLY		78-2-274A										1	ASSEMBLY	78-2-274
2	PARACHUTE CANOPY ASSEMBLY		78-2-275A										2	DETAILS	78-2-275
3													3	FOLDING DIAGRAM	78-2-276
4	CANOPY, PARACHUTE	1	78-2-275B		CLOTH, PARACHUTE, CELANESE FORTISAN		50-11-124			(f)					
5	CORD, TYING	1	78-2-274B		FIBERGLAS-ASBESTOS CORD		COMMERCIAL			(g)(c)					
6	EYELET	8	78-2-275E		NON-FERROUS METAL		COMMERCIAL								
7															
8	LINE, SHROUD	8	78-2-275D		FIBERGLAS-ASBESTOS CORD		COMMERCIAL			(c)					
9															
10	SHROUD, CENTER	1	78-2-275G		FIBERGLAS-ASBESTOS CORD		COMMERCIAL								
11															
12	TAPE, REINFORCING	8	78-2-275C	TAPE	COTTON TAPE		DDD-T-86								
13	THREAD, TYING	1	78-2-275F		FIBERGLAS-ASBESTOS CORD		COMMERCIAL			(g)					
14					THREAD, COTTON		V-T-276			(h)					
15					NYLON THREAD		COMMERCIAL			(d)(b)(c)					
16															

(b) 3 PLY NYLON THREAD HAVING A "Z" TWIST, 8.5 LBS. BREAKING STRENGTH MIN., 6,000 YARDS PER LB. MIN., 20% ELONGATION MAX.

(c) 40 LBS. BREAKING STRENGTH MIN., 390 YARDS PER LB. MIN., $\frac{3}{64}$ DIA. MAX.

(d) ALTERNATIVE MATERIAL: 3 PLY NYLON THREAD HAVING A "Z" TWIST, 8 LBS. BREAKING STRENGTH (MIN.), 5800 YARDS PER LB. (MIN.) AND 28% ELONGATION (MAX.).

(e) SUBSTITUTE MATERIAL: 3 PLY NYLON THREAD HAVING A "Z" TWIST, 7 LBS. BREAKING STRENGTH (MIN.), 5600 YARDS PER LB. (MIN.) AND 26% ELONGATION (MAX.).

(f) ALTERNATIVE MATERIAL: BEMBERG CLOTH, SPEC. 50-11-119.

(g) ALTERNATIVE MATERIAL: LINEN THREAD, TYPE "B", 8 PLY.

(h) ALTERNATIVE MATERIAL: COTTON THREAD, TYPE 1A-2, 3 PLY TICKET #40.

78-2-275A

24- $\frac{1}{2}$ (a)

30- $\frac{1}{2}$

3 MIN.

CORD, TYING 78-2-274B3
FIBERGLAS-ASBESTOS CORD, COMMERCIAL
40 LBS. BREAKING STRENGTH MIN.,
390 YDS. PER LB. MIN., $\frac{3}{64}$ DIA. MAX.
LENGTH=3. APPROX.
ALTERNATIVE: LINEN THREAD,
TYPE "B", 8 PLY.

KNOT END OF CENTER SHROUD WITH
SINGLE KNOT, THEN SECURE TO
CENTER OF CANOPY WITH COTTON
THREAD, TYPE 1-B2, 3 PLY TICKET
#50, OR TYPE 1-C1, 3 PLY TICKET
#000, USING TYPE 304 STITCH,
WITH 6 \pm 2 STITCHES.

78-2-275G

78-2-275D

BIND SHROUDS SECURELY TOGETHER WITH
TYING CORD USING DOUBLE HALF HITCH.
KNOT TO BE SUFFICIENTLY TIGHT TO PREVENT
SLIPPAGE OF SHROUDS. TRIM OFF EXCESS CORD.

(a) ALL SHROUDS ON ANY PARACHUTE
MUST BE THE SAME LENGTH.

AFTER REEVING SHROUD LINE, TIE SINGLE KNOT
AT END, THEN SECURE TO PARACHUTE BODY WITH
SLIP KNOT AND PULL TAUT.

PARACHUTE ASSEMBLY 78-2-274A3

0 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 INCHES.

SUPERSEDES OLD TRACING 78-2-274,
UNDER REVISION DATE OF DEC. 6, 1943.

SHELL, ILLUMINATING, M83A1,
FOR 60 MM MORTARS.
PARACHUTE ASSEMBLY.

APRIL 9, 1942

REVISIONS

1	5-24-43
2	12-6-43
3	8-15-45

CLASS 78 DIVISION 2 DRAWING 274

SYMBOL

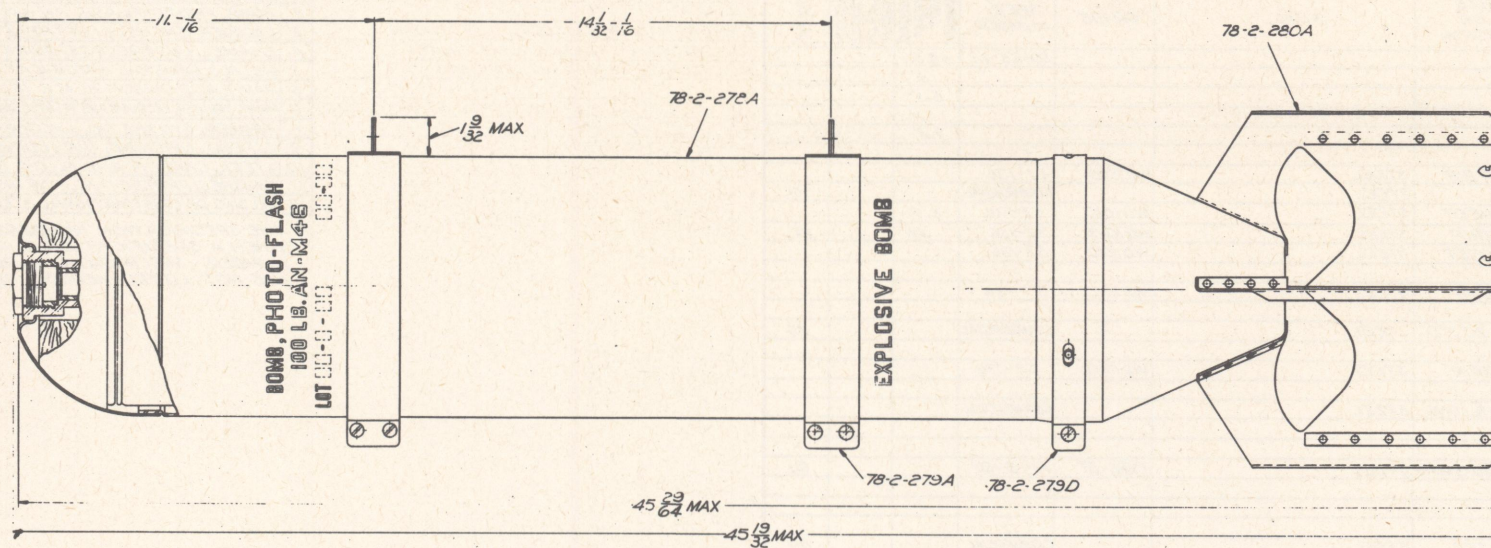
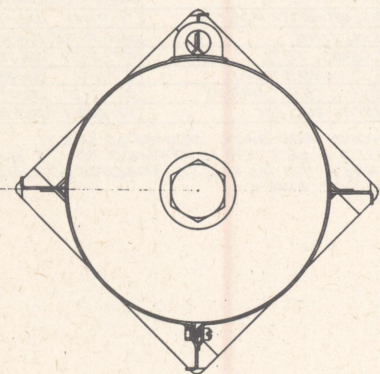
DRG. PERTAINS TO

EXAMINED

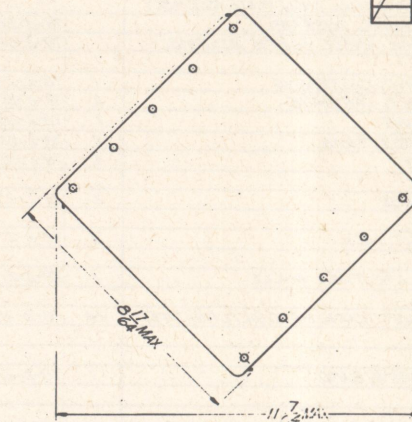
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE

ORDNANCE DEPT., U.S.A.

HEAT TREATMENT AND FINAL FINISH



ASSEMBLY 78-2-277A5
TOUGH UP WITH BLUE-GRAY LACQUER ENAMEL, GRADE I, WHERE NECESSARY.



PHYSICAL PROPERTIES	
Y.P.	
T.S.	
EL. 2	
RED.	
BR.	
ROCK.	

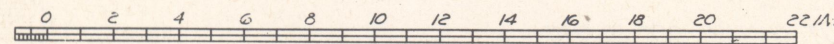
LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	ASSEMBLY	78-2-277
2	LIST OF PARTS & LIST OF SPECS	78-2-277A
3	LOADING ASSY & MARKING DIAGRAM	78-2-278
4	DETAILS	78-2-279
5	DETAILS	78-2-280
6	TRAIL ANGLES, DETAILS	78-2-531
7	PACKING BOX	76-16-325
8	PACKING & MARKING OF BOX	20-4-338

BOMB, PHOTO FLASH, 100-LB.
AN-M46 ASSEMBLY (WITHOUT FUZE)

APRIL 22, 1942	CLASS	DIVISION	DRAWING	FILE
REVISIONS	78	2	277	
4 8-15-43				
5 11-3-48				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED				
DECIMAL 1				
FRACTIONAL 2				
ANGULAR 1				
DRG. PERTAINS TO				
78-0-35				
SUBMITTED:				
ORD. ENG., ORD. DEPT. U.S.A.				
EXAMINED:				
C.R. Dutton				
COL., ORD. DEPT. U.S.A.				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:				
J. H. H. H.				
COL., ORD. DEPT. U.S.A.				
ORDNANCE DEPT., U.S.A.				

NOTICE: THIS DRAWING SHALL NOT BE USED NEARLY REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

SUPERSEDES 78-2-277 WITHOUT CHANGE NOVEMBER 3, 1948



LINE NO	LIST OF PARTS									
	NAME OF PART	NUMBER REQ'D PER COMPONENT	PIECE MARK	SIZE OR FORM	MATERIAL KIND	GRADE	SPEC NUMBER	APPROXIMATE UNIT WEIGHT (POUNDS)	APPROXIMATE WT OF RAW STOCK PER 1000 ASSEMBLIES	REMARKS
1	ASSEMBLY		78-2-277A				50-55-15	48.5		
2	FASTENING BAND ASSEMBLY		78-2-279D					.5		
3	FIN AND TRAIL ANGLE PLATE ASSEMBLY		78-2-279A					6.5		
4	LOADING ASSEMBLY		78-2-278A							
5	TRAIL ANGLE PLATE ASSEMBLY		78-2-279H					1.5		
6										
7	BAND, FASTENING	1	78-2-279F	STRIP	STEEL	WD 1010	57-136			
8	BOLT, CARRIAGE	2	78-2-279L		STEEL		COMMERCIAL			(b)
9	CONE	1	78-2-280D	SHEET	STEEL	WD 1010	57-136	2.4		
10	ANGLE, TRAIL	2	78-2-531A	STRIP	STEEL	WD 1010	57-136	.16		(a)
11	FIN	4	78-2-280C	SHEET	STEEL	WD 1010	57-136			
12										
13	GUIDE	2	78-2-279G	STRIP	STEEL	WD 1010	57-136			
14										
15	NUT, HEX.	3	78-2-279M	1/2-20 STD	STEEL		COMMERCIAL			(b)
16										
17	PLATE, TRAIL ANGLE	1	78-2-279P	STRIP	STEEL	WD 1010	57-136			
18										
19	RIVET, ROUND HEAD (ALTERNATIVE)	24	78-2-280B	1/8-20 LONG	STEEL		COMMERCIAL			
20										
21										
22	SCREW, BAND	1	78-2-279C	1/2-20X1/2 LONG	STEEL	TYPE IV	FF-S-91			(b)
23										
24										
25										
26	WASHER, LOCK	3	78-2-279B	1/4 STD	STEEL		COMMERCIAL			(b)
27										
28					ENAMEL, BLUE GRAY	I	JAN-E-74			
29					LACQUER ENAMEL, BLUE-GRAY	I	JAN-L-73			
30					PRIMER, SYNTHETIC, LACQUER RESIST		JAN-P-72			
31					PAINT, ACID-PROOF BLACK	TYPE I	JAN-P-450			
32										
33										
34										
35										

(a) SHIPPED WITH BOMB AND USED AS REQUIRED.
(b) PROTECTIVE FINISH: TYPE I, CLASS TS, RS OR RSC, SPEC 57-O-2.

SUPERSEDES 78-2-277A WITHOUT CHANGE DEC 28, 1948

LINE NO	LIST OF SPECIFICATIONS	SPEC NUMBER	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM., GENERAL SPEC FOR	50-O-1	DWG 78-2-277
2	BOMB, PHOTO-FLASH, AN-M46	50-55-15	DWG 78-2-277
3	LACQUER ENAMEL, LUSTRELESS	JAN-L-73	DWG 78-2-277
4	ENAMEL, LUSTRELESS, QUICK-DRYING	JAN-E-74	DWG 78-2-280
5	METALS, GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	57-136
6	PAINT, ACID-PROOF BLACK (FOR AMMUNITION)	JAN-P-450	DWG 78-2-280
7	PAINT, VARNISH, LACQUER AND RELATED MATERIALS, METHODS OF INSP, ETC	TT-P-141	JAN-L-73
8	PRIMER, SYNTHETIC, LACQUER RESISTING	JAN-P-72	DWG 78-2-280
9	SCREWS, MACHINE, (INCLUDING SCREWS, SET)	FF-S-91	DWG 78-2-279
10	STEEL, CARBON AND ALLOY, SHEETS AND STRIPS	57-136	DWG 78-2-228
11	FINISHES, PROTECTIVE, FOR IRON AND STEEL PARTS	57-O-2	DWG 78-2-277
12	WELDING OF CONSTRUCTIONAL STEEL, METAL ARC, ETC	57-206-1	DWG 78-2-279

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

NOTICE-THIS DRAWING SHALL NOT BE USED NOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

BOMB, PHOTO FLASH, 100-LB AN-M46, ASSEMBLY (WITHOUT FUZE).			
LIST OF PARTS AND LIST OF SPECIFICATIONS.			
APRIL 22, 1942	CLASS	DIVISION	DRAWING FILE
REVISIONS	78	2	277A
3 8-15-45			
4 12-28-48			
5 9-29-49			
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED DECIMAL ± FRACTIONAL ± ANGULAR ±			
DRG. PERTAINS TO	78-2-277	CHECKER A.C.U.	ENGINEER J.A.C.
SUBMITTED: O.P. Borman ORD. ENG. ORD. DEPT. U.S.A.			
EXAMINED: C.R. Dutton COL., ORD. DEPT. U.S.A.			
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE: J.A.C. COL., ORD. DEPT. U.S.A.			
D ORDNANCE DEPT. U.S.A.			

LIST OF PARTS

LINE NO.	NAME OF PART	NUMBER REQD PER COMPONENT	PIECE MARK	SIZE OR FORM	MATERIAL	GRADE	SPEC NUMBER	APPROXIMATE WEIGHT (POUNDS)	APPROX GROSS WT OF ASSEMBLIES	REMARKS
1	LOADING ASSEMBLY		78-2-278A							
2	BOMB BODY ASSEMBLY		78-2-281A							
3	CHARGE ASSEMBLY		78-2-284A							
4	FIRING CUP ASSEMBLY		78-2-282T							
5	BLOCK, NOSE	1	78-2-282M		WOOD		COMMERCIAL			
6	CHARGE, FIRING CUP	1	78-2-282R		POWDER, BLACK	A4	JAN-P-223			
7										
8	CUP, CLOSING	1	78-2-282H	SHEET	STEEL	WD1010	57-136			
9	CUP, FIRING	1	78-2-282N	BAR	STEEL	FSX1112	QQ-S-671			
10	DISC, SEALING	1	78-2-282P	SHEET	PAPER, ONIONSKIN		JAN-P-157			
11	DISC, SUPPORTING	1	78-2-283C	SHEET	PLYWOOD, MOISTURE-RESISTANT	INDUSTRIAL	JAN-P-66			
12	DISC, UPPER	1	78-2-282F	SHEET	GILDING METAL		JAN-G-439			
13	FILLER	(C)	78-2-283B	SHEET	CHIPBOARD	TYPE II	50-11-86			
14										
15	PLUG, CLOSING	1	78-2-282L	BAR	STEEL	FS1112	QQ-S-671			(g) (h)
16	PLUG, CLOSING (ALTERNATIVE)		78-2-282W	STRIP	STEEL	WD1010	57-136			
17	RING, ADAPTER	1	78-2-282D	BAR	STEEL	FS1112, FS1113, FS1114 OR FS1115	QQ-S-671			(g) (h)
18	SPACER	1	78-2-283A	SHEET	BOXBOARD		COMMERCIAL			
19	STRIP	3	78-2-283D	SHEET	CHIPBOARD		50-11-86			(f)
20	WASHER	(C)	78-2-282U		FELT, PRESSED	NO. 10	8-15			
21										
22					CEMENT, PETTMAN		JAN-C-99			
23					GREASE, SHELL		50-11-37			
24					INK, STENCIL, BLACK		TT-I-558			
25					LACQUER ENAMEL, BLUE-GRAY	I	JAN-L-73			(e)
26					VARNISH, SHELLAC	TYPE B, 8" MEDIUM BODY	TT-V-91			

(C) ONE OR MORE AS REQUIRED TO PACK FIRMLY.
 (d) ALTERNATIVE MATERIAL: (d) ENAMEL, BLUE-GRAY, GRADE I, SEC JAN-E-74.
 (f) SPEC APPLIES EXCEPT FOR THICKNESS.
 (g) ALTERNATIVE MATERIAL: (g) MALLEABLE IRON, TYPE A, SPEC QQ-I-666.
 (h) ALTERNATIVE MATERIAL: (h) MOLDED PLASTIC, SPEC AXS-698.
 (i) NOT REQUIRED WHEN PLUG, CLOSING (ALTERNATIVE) 78-2-282W IS USED.
 (j) ALTERNATIVE MATERIALS ARE INTENDED TO BE USED ONLY WHEN PRESCRIBED MATERIALS ARE NOT AVAILABLE.

LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	LOADING ASSEMBLY	78-2-278
2	BOMB BODY ASSEMBLY	78-2-281
3	CHARGE ASSEMBLY	78-2-284
4	DETAILS	78-2-282
5	DETAILS	78-2-283

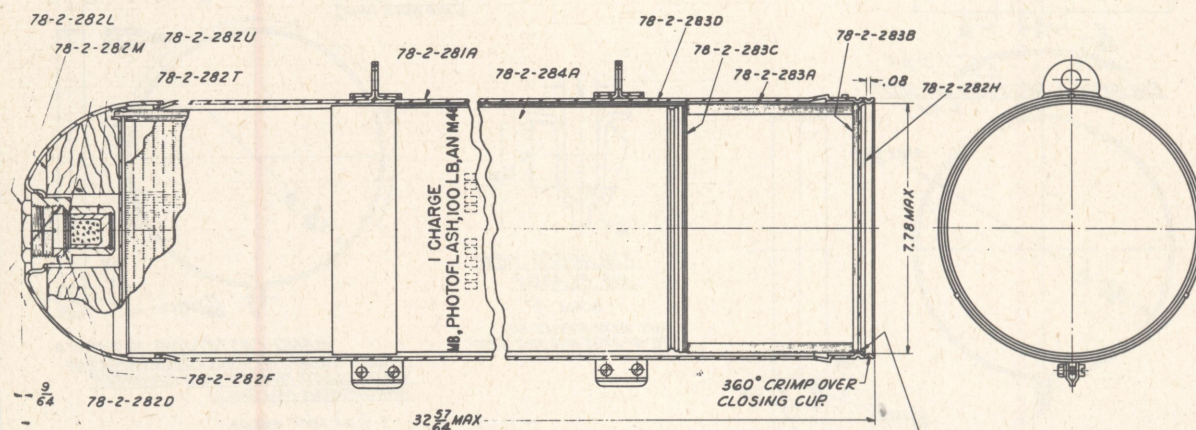
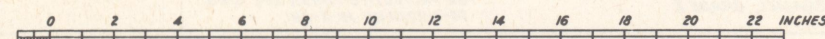
NOTICE: THIS DRAWING SHALL NOT BE USED OR REPRODUCED EITHER WHOLLY OR IN PART, EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

BOMB, PHOTO FLASH, 100 LB AN-M46.
LOADING ASSEMBLY AND MARKING DIAGRAM.

DATE OF ORIGIN	APRIL 22, 1942
CLASS	78 2 278
PHYSICAL PROPERTIES	78-2-277
WEIGHT	16.00
SCALE	1/4" = 1"
TOLERANCES UNLESS OTHERWISE SPECIFIED	±.005
APPROVED	CR Dutton

LINE NO.	LIST OF SPECIFICATIONS	SPEC NUMBER	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM, GENERAL SPEC FOR	50-0-1	DWG 78-2-278
2	CEMENT, PETTMAN	JAN-C-99	DWG 78-2-278
3	CHIPBOARD, PLAIN, FOR AMM CONTAINERS	50-11-86	DWG 78-2-283
4	ENAMEL, LUSTRELESS, QUICK-DRYING	JAN-E-74	DWG 78-2-282
5	FELT, PRESSED	8-15	DWG 78-2-282
6	GILDING METAL (95/5 BRASS); SHEET AND STRIP	JAN-G-439	DWG 78-2-282
7	GREASE, SHELL	50-11-37	DWG 78-2-278
8	INK, STENCIL; OPAQUE, FOR MARKING NON-POROUS SURFACES	TT-I-558	DWG 78-2-278
9	IRON, MALLEABLE; CASTING	QQ-I-666	DWG 78-2-278
10	LACQUER, ENAMEL, LUSTRELESS	JAN-L-73	DWG 78-2-278
11	PAINT, VARNISH, LACQUER, AND RELATED MATERIALS, ETC	TT-P-141	JAN-L-73
12	PLYWOOD, FLAT PANEL	JAN-P-66	DWG 78-2-283
13	PAPER, GENERAL SPECIFICATIONS	UU-P-31	JAN-P-157
14	PAPER, ONIONSKIN	JAN-P-157	DWG 78-2-282
15	PLASTIC, MOLDED PARTS FOR AMMUNITION	AXS-698	DWG 78-2-282
16	POWDER, BLACK	JAN-P-223	DWG 78-2-282
17	STANDARD SPECIFICATION FOR MARKING SHIPMENTS	100-2	DWG 78-2-278
18			
19	STEEL, CARBON AND ALLOY BARS	QQ-S-671	DWG 78-2-282
20	STEEL, CARBON AND ALLOY, SHEETS AND STRIPS	57-136	DWG 78-2-282
21	TEXTILES; GENERAL SPECIFICATIONS, TEST METHODS	CCC-T-191	8-15
22	VARNISH; SHELLAC	TT-V-91	DWG 78-2-282

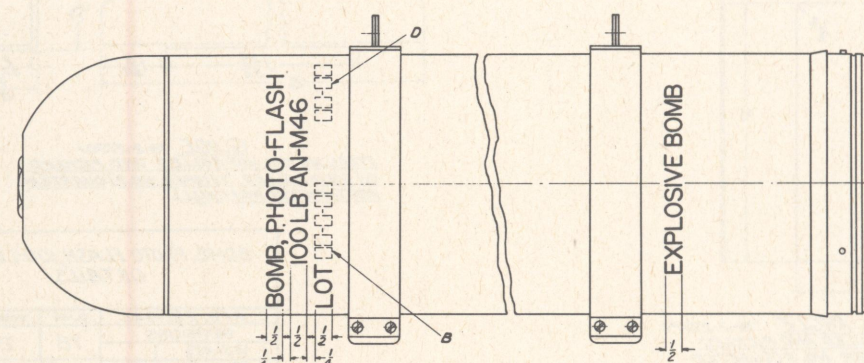
* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.



COAT TWO BOTTOM THREADS OF ADAPTER AND THAT PORTION OF THE UPPER DISC WHICH COMES IN CONTACT WITH THE ADAPTER RING WITH PETTMAN CEMENT BEFORE ADAPTER RING IS ASSEMBLED. COAT THREADS OF CLOSING PLUG LIGHTLY WITH SHELL GREASE BEFORE ASSEMBLING IN ADAPTER.

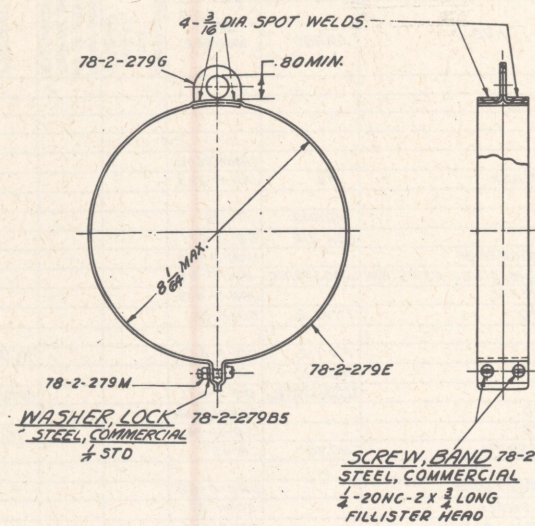
LOADING ASSEMBLY 78-2-278A7

INSERT CHARGE ASSEMBLY AS SHOWN. PLACE STRIPS, EQUALLY SPACED, AROUND CHARGE ASSEMBLY TO SECURE IN PLACE. INSERT SUPPORTING DISC, SPACER AND ONE OR MORE FILLERS TO PACK CHARGE ASSEMBLY SECURELY. THEN COAT ENTIRE OUTSIDE RIM OF CLOSING CUP WITH PETTMAN CEMENT. INSERT IN BODY SO THAT LAPPED SEAM SEATS IN DEPRESSION IN RIM OF CUP AND CRIMP AS SHOWN BEFORE CEMENT SETS. IF CRIMPING OPERATION CAUSES CHIPPING OF COATING TOUCH UP WITH BLUE-GRAY LACQUER ENAMEL.



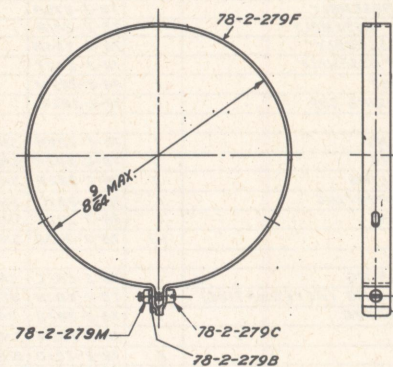
MARKING DIAGRAM
 NOTES: A-MARK WITH BLACK STENCIL INK.
 B-INSERT LOT NUMBER.
 D-INSERT MONTH AND YEAR OF MANUFACTURE.

SUPERSEDES 78-2-278 WITHOUT CHANGE SEPT 29, 1949

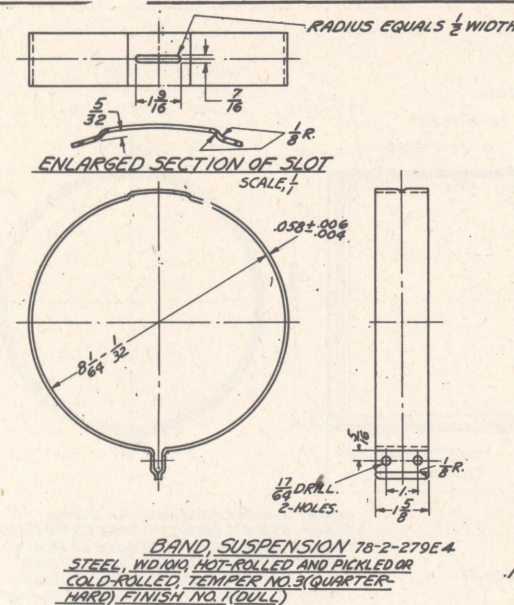


(a) SUSPENSION BAND ASSEMBLY 78-2-279A5

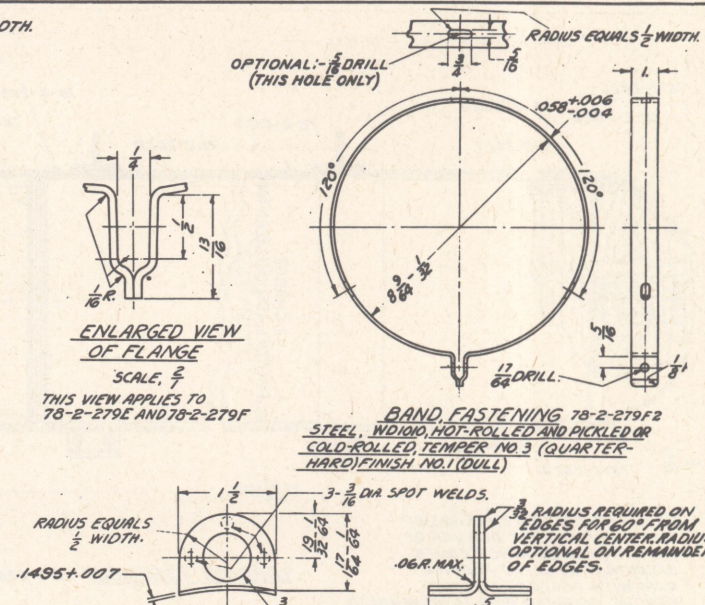
(a) BEFORE ASSEMBLING SCREWS, LOCK WASHERS AND NUTS, PRIME ALL SURFACES WITH LACQUER RESISTING SYNTHETIC PRIMER. THEN COAT WITH BLUE GRAY LACQUER ENAMEL, GRADE I, OR BLUE GRAY ENAMEL, GRADE I.



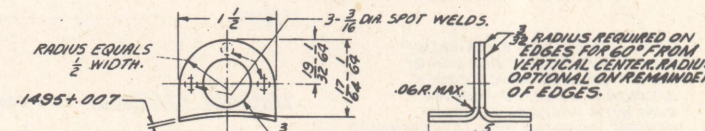
(a) FASTENING BAND ASSEMBLY 78-2-279D5



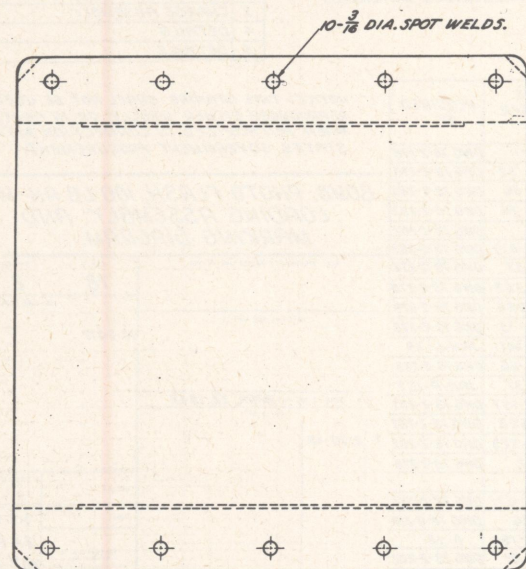
BAND SUSPENSION 78-2-279E4
STEEL, WD 1010, HOT-ROLLED AND PICKLED OR
COLD-ROLLED, TEMPER NO. 3 (QUARTER-
HARD) FINISH NO. 1 (DULL)



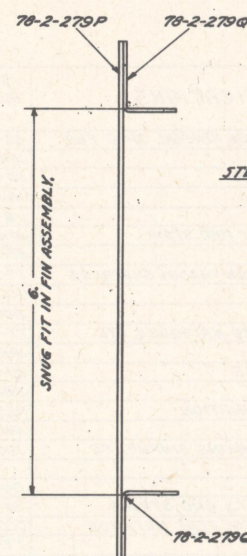
BAND FASTENING 78-2-279F2
STEEL, WD 1010, HOT-ROLLED AND PICKLED OR
COLD-ROLLED, TEMPER NO. 3 (QUARTER-
HARD) FINISH NO. 1 (DULL)



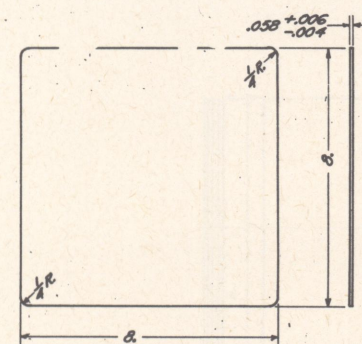
LUG SUSPENSION 78-2-279G4
STEEL, WD 1010, HOT-ROLLED AND PICKLED OR
COLD-ROLLED, TEMPER NO. 3 (QUARTER-
HARD) FINISH NO. 1 (DULL)



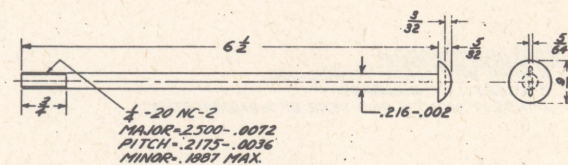
TRAIL ANGLE PLATE ASSEMBLY 78-2-279H3
PRIME ENTIRE SURFACE WITH LACQUER RESISTING SYNTHETIC PRIMER. THEN COAT WITH
BLUE GRAY LACQUER ENAMEL, GRADE I OR BLUE GRAY ENAMEL, GRADE I.



NUT, HEX 78-2-279H5
STEEL, COMMERCIAL
20NC-2

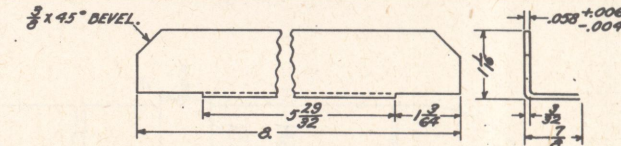


PLATE, TRAIL ANGLE 78-2-279P1
STEEL, WD 1010, HOT-ROLLED AND PICKLED
OR COLD-ROLLED, TEMPER NO. 3 (QUARTER-
HARD) FINISH NO. 1 (DULL)



BOLT, CARRIAGE 78-2-279L5
STEEL, COMMERCIAL

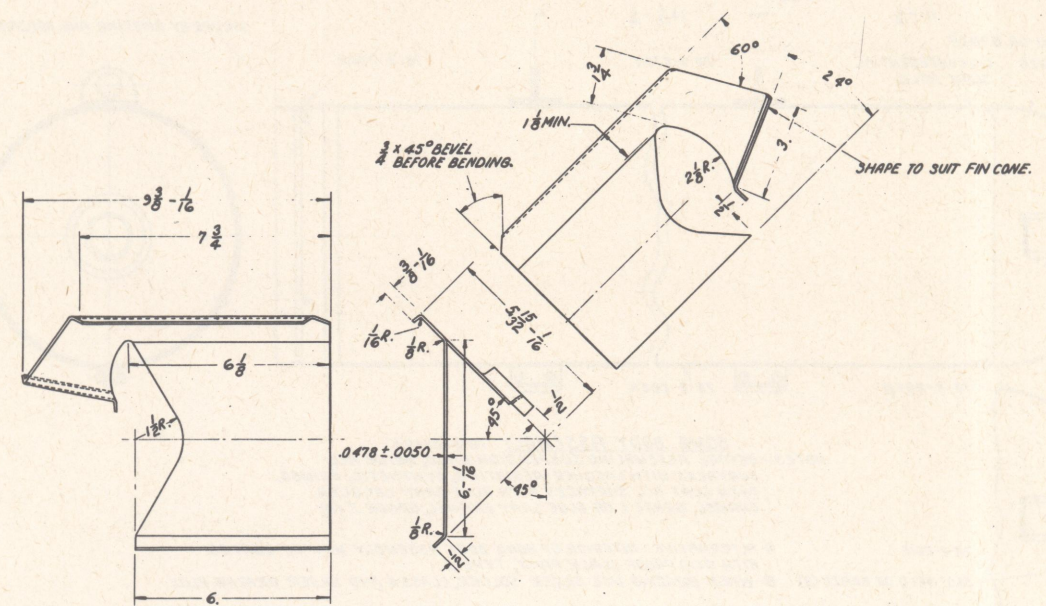
NOTE-THREAD DIMENSIONS APPLY AFTER PLATING.



GUIDE 78-2-279Q1
STEEL, WD 1010, HOT-ROLLED AND PICKLED
OR COLD-ROLLED, TEMPER NO. 3 (QUARTER-
HARD) FINISH NO. 1 (DULL)

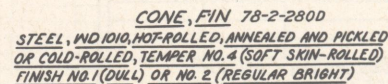
BOMB, PHOTO FLASH, 100-LB, AN-M46
DETAILS.

APR. 22, 1942	CLASS	DIVISION	DRAWING	FILE
REVISIONS	78	2	279	
1 5-31-42				
2 5-10-43				
3 9-18-44				
4 9-18-45				
5 9-23-49				
DRG. PERTAINS TO				
78-2-277				
78-2-281				
SUBMITTED				
EXAMINED				
APPROVED BY ORDER OF THE CHIEF OF				
ORDNANCE				
ORDNANCE DEPT. U. S. A.				



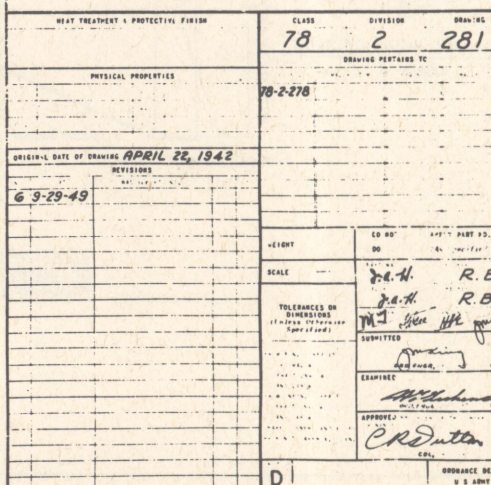
NOTE:-PRIME ALL SURFACES OF FIN CONE AND FINs WITH LACQUER RESISTING SYNTHETIC PRIMER, THEN COAT ALL SURFACES WITH BLUE-GRAY LACQUER ENAMEL, GRADE I, OR BLUE GRAY ENAMEL, GRADE I. (a).
(a) ALTERNATIVE:- INTERIOR OF FIN CONE MAY BE COATED WITH ACID PROOF BLACK PAINT, TYPE I.

STEEL, WD 1010, HOT-ROLLED, PICKLED OR
COLD-ROLLED, TEMPER NO. 3 (QUARTER HARD) OR NO. 4 (SOFT SKIN-ROLLED),
FINISH NO. 1 (DULL).

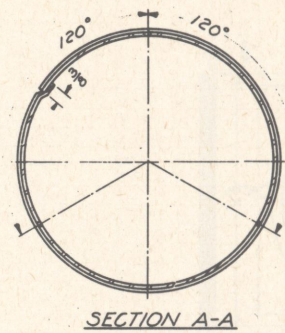


SCALE, INCHES, $\frac{1}{2}$

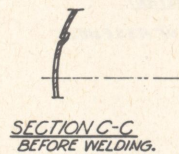
BOMB, PHOTO-FLASH, 100 LB, AN-M46. DETAILS.					
APR. 22, 1942		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	280	
1	5-31-42	SYMBOL			
2	5-10-43				
3	9-18-44				
DRG. PERTAINS TO		DTSMAN G.R.B.	TRACER R.F.C.	ENGINEER 78	
78-2-277	A.F.	CHECKER J.A.F.	CHECKER'S [initials]	CHIEF DTSMAN [signature]	
		SUBMITTED: [signature] Wilson [signature] COL., ORG. DEPT. U.S.A.			
		EXAMINED: [signature] R. B. Butler Jr. LT. COL., ORG. DEPT. U.S.A.			
		APPROVED BY ORDER OF THE CHIEF OF ORDNANCE: [signature] [signature] COL., ORG. DEPT. U.S.A.			
D /		ORDNANCE DEPT. U.S.A.			



SUPERSEDES 78-2-281 WITHOUT CHANGE SEPT 29, 1949



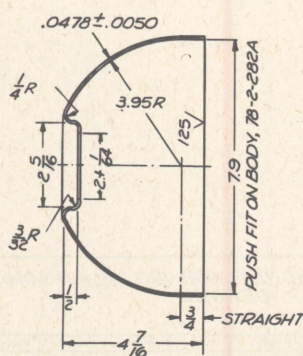
(a) BODY 78-2-282A6
STEEL, WD 1010, HOT-ROLLED AND PICKLED



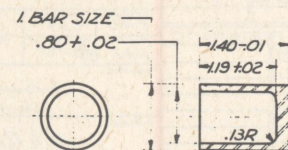
SECTION C-C
BEFORE WELDING.

WHEN ALTERNATE LAPPING IS USED THE $\frac{1}{8} \times \frac{1}{2}$ DEFECT NOT BE USED.

ENLARGED SECTION A-A

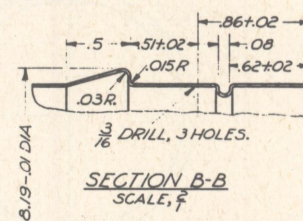


(a) NOSE 78-2-25276.
STEEL, WD 100, HOT-ROLLED, ANNEALED AND PICKLED
FOR ALTERNATIVE CONSTRUCTION SEE 78-2-2810

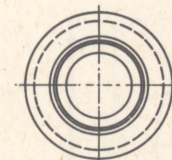


(a) CUP, FIRING 78-2 282NG
STEEL, FS XIII2, COLD-DRAWN
FINISH 1251

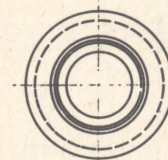
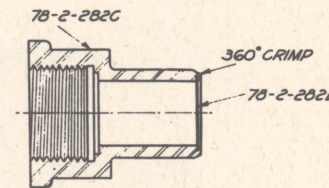
SUPERSEDES 78-2-282 WITHOUT CHANGE DEC 28 1948



1.5-12NF-1
MAJOR DIA 1.4976-.0158
PITCH DIA 1.4435-.0079
MINOR DIA 1.3954 MAX

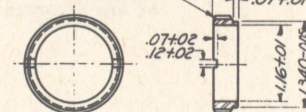


NOSE ADAPTER ASSEMBLY 78-2-282B2
ALTERNATIVE CONSTRUCTION 78-2-281E

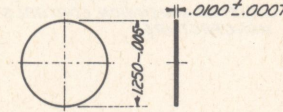


ALTERNATIVE CONSTRUCTION 78-2-281F

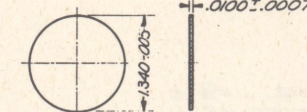
1a) ADAPTER, NOSE 78-2-282C6
STEEL, FS 1115, FSX1314 OR FSX1315, COLD-DRAWN.
FINISH 125/



(a) RING, ADAPTER 78-2-28206
STEEL, FS 1115, FSX 1112, FSX 1314 OR FSX 1315
COLD-DRAWN, FINISH 125/



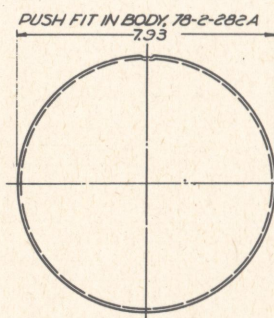
(a) DISC, LOWER 78-2-282 E6
GILDING METAL
DIAMETER DIMENSION CONTROLS
TOOL MANUFACTURE.



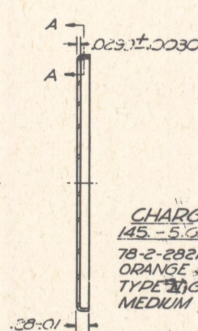
[a] DISC, UPPER 78-2-282 F6
GILDING METAL
DIAMETER DIMENSION CONTROLS
TOOL MANUFACTURE.

[illegible]

NOTE-MAY BE B 11.
'P IN LAYERS.

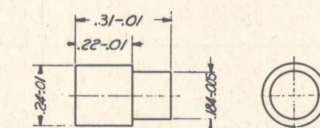


(a) CUP, CLOSING 78-2-28246
STEEL, WDIKO, HOT ROLLED AND PICKLED

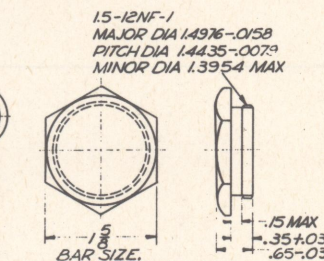


CHARGE, FIRING CLIP 78-2-282R1
145 - 5 GRAINS, BLACK POWDER, GRADE A4
78-2-282P: SECURE WITH
ORANGE SHELLAC VARNISH,
TYPE 2, GRADE B,
MEDIUM BODY.

FIRING CUP ASSEMBLY 78-2-2827



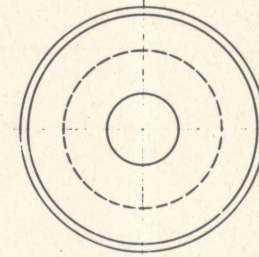
RIVET 78-2-282KE
STEEL, F31115, FSX1314 OR FSX1315
COLD-DRAWN.
FINISH 125/



(a) PLUG, CLOSING 78-2-2
STEEL, FS 1112, COLD DRAWN
FINISH 125/

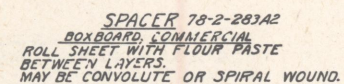


BIC 1A, NO. 12-2-222M
SOFT WOOD, COMMERCIAL, MOISTURE CONTENT 8.5%

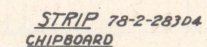
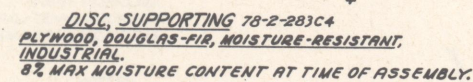
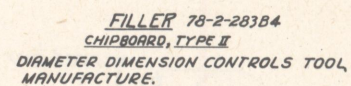


BOMB, PHOTO FLASH, 100-LB,
AN-M-16. DETAILS.

APR 22 1964				CLASS		DIVISION		DRAWING		FILE	
REVISIONS				78		2		282			
5 12-15-65				TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED DECIMAL 2 FRACTIONAL 2 ANGULAR 2							
6 12-20-60											
DRG. PERTAINS TO				DPTMAN		TRACER				ENGINEER	
APC				APC		R.E.				JMM	
				CHECKER		A.G.V.		JAB 60		ENGINEER	
										J.M.K.	
				SUBMITTED: D.P.B. 2000000 C.E. ENG. ORD DEPT. U.S.A.							
				EXAMINED: C.R. Dutton COL., ORD. DEPT. U.S.A.							
				APPROVED BY ORDER OF THE CHIEF OF ORDNANCE. J. P. ... COL., ORD. DEPT. U.S.A.							
D				ORDNANCE DEPT. U.S.A.							



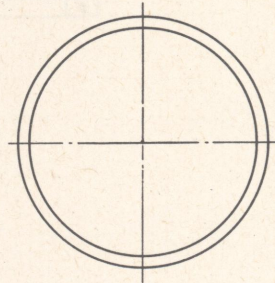
(Q) WHEN PHOTO-FLASH POWDER, TYPE I, CLASS "A" IS USED..... $4\frac{3}{4}$ - $\frac{1}{2}$
WHEN PHOTO-FLASH POWDER, TYPE II, CLASS "A" OR "B" IS USED.. $10\frac{1}{2}$ - $\frac{1}{2}$



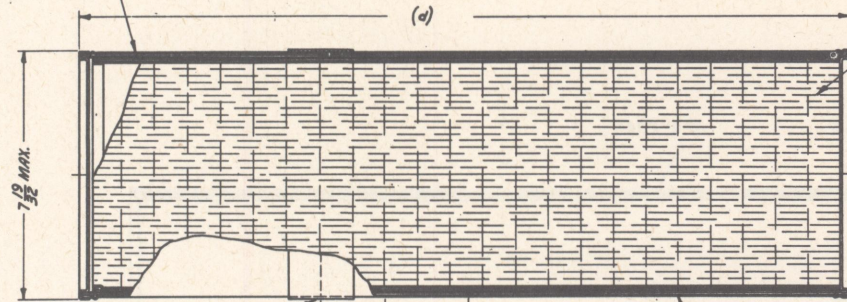
NOTICE: THIS DRAWING SHALL
NOT BE USED NOR REPRODUCED
EITHER WHOLLY OR IN PART EX-
CEPT WHEN AUTHORIZED IN CON-
NECTION WITH UNITED STATES
GOVERNMENT PROCUREMENT.

SCALE, INCHES, $\frac{1}{2}, \frac{1}{4}$

BOMB, PHOTO-FLASH, 100 LB, AN-M46.									
DETAILS.									
APR. 21, 1942					CLASS	DIVISION	DRAWING	FILE	
REVISIONS					78	2	283		
1	5-31-42				SYMBOL				
2	5-10-43								
3	9-18-44								
4	9-29-49								
DRG. PERTAINS TO					DTSMAN R. M. D.	TRACER C. G. T.	ENGINEER J. C.		
78-2-278					CHECKER J. A. F.	CHECKER W. C.	CHIEF DTSMAN W. H. G.		
					SUBMITTED:-				
					W. H. G.				
					CO. C. ORD. DEPT. U. S. A.				
					APPROVED:-				
					R. L. Butler, Jr.				
					LT. COL. ORD. DEPT. U. S. A.				
					APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:-				
					W. H. G.				
					COL. ORD. DEPT. U. S. A.				
D					ORDNANCE DEPT. U. S. A.				



AFTER INSERTING CHARGE, COVER ASSEMBLY TO BE SECURED TO BODY ASSEMBLY WITH GLUE, GRADE II OR DEXTRIN, TYPE I, (a) OVER ENTIRE AREA OF JOINT.



CHARGE 78-2-284C 4
APPROX. 25 LBS. PHOTOFLASH POWDER

STRIP, SEALING 78-2-284B 4
TAPE, ADHESIVE, TYPE II, GRADE A
(COLOR BLACK OR WHITE)
2 X 2 1/2 APPROXIMATELY

CHARGE ASSEMBLY 78-2-284A 4

(d) WHEN PHOTO-FLASH POWDER, TYPE I, CLASS 'A' IS USED.....23 1/2 MAX.
WHEN PHOTO-FLASH POWDER, TYPE II, CLASS 'A' OR 'B' IS USED.....18 1/2 MAX.

1 CHARGE
BOMB, PHOTOFLASH, 100 LB, AN M46
MARKING INSTRUCTIONS
MARK WITH LETTERS AND FIGURES APPROX 1/8 HIGH
USING WHITE STENCIL INK.
PLACE MARKING AS INDICATED.
A-LOADERS LOT NUMBER.
B-DATE (MONTH AND YEAR) LOADED.

LIST OF PARTS

LINE NO.	NAME OF PART	NUMBER REQ'D PER COMPONENT	PIECE-MARK	MATERIAL			APPROXIMATE WEIGHT (POUNDS)	APPROX GROSS WT. OF RAW STOCK PER RAW ASSEMBLY	REMARKS
				SIZE OR FORM	KIND	GRADE			
1	CHARGE ASSEMBLY		78-2-284A						
2	CHARGE CONTAINER ASSEMBLY	1	78-2-285						
3	CHARGE	1	78-2-284C		PHOTOFLASH POWDER	TYPE I, CLASS 'A'	JAN-P-466	25.	
4	STRIP, SEALING	1	78-2-284B	STRIP	TAPE, ADHESIVE, WATER RESISTANT	TYPE II, A	JAN-P-127		
5					GLUE	3-102			(a)
6					INK, STENCIL, WHITE	TT-I-559			

(a) ALTERNATIVE MATERIAL:-DEXTRIN, TYPE I, SPEC JAN-D-232.

LIST OF SPECIFICATIONS

LINE NO.	SPEC. NUMBER *	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM, GENERAL SPEC. FOR	50-0-1 DRG. 78-2-284
2	GLUE (FOR USE IN THE LOADING OF AMMUNITION)	3-102 DRG. 78-2-284
3	DEXTRIN (FOR USE IN AMMUNITION)	JAN-D-232 DRG. 78-2-284
4	INK, STENCIL; OPAQUE, FOR MARKING POROUS SURFACES	TT-I-559 DRG. 78-2-284
5	POWDER, PHOTOFLASH	JAN-P-466 DRG. 78-2-284
6	TAPE, ADHESIVE, PRESSURE-SENSITIVE, WATER RESISTANT	JAN-P-127 DRG. 78-2-284

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

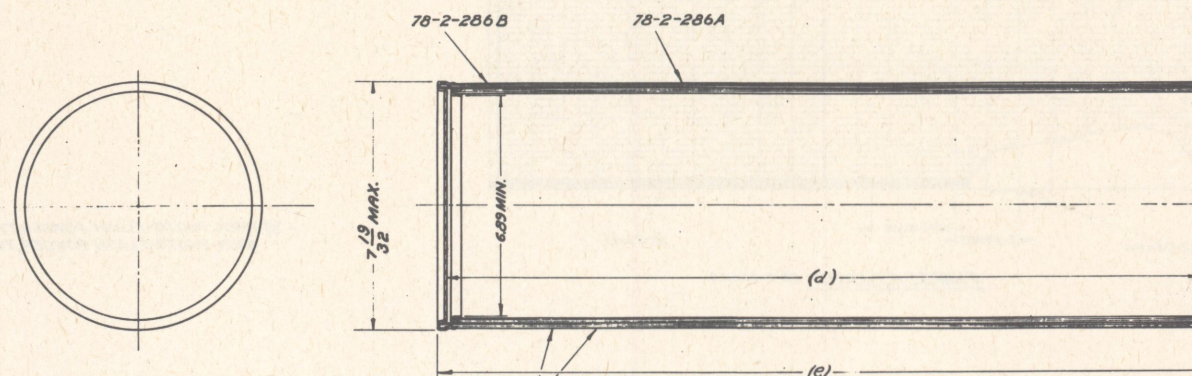
0 2 4 6 8 10 12 14 16 18 20 22 INCHES.

LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	CHARGE ASSEMBLY	78-2-284
2	CONTAINER, FIBER	78-2-285
3		

BOMB PHOTO FLASH, 100 LB, AN-M46. CHARGE ASSEMBLY.				
APR. 22, 1942	CLASS	DIVISION	DRAWING	FILE
REVISIONS	78	2	284	
1 5-10-43				
2 7-16-43				
3 9-18-44				
4 9-29-45				
SYMBOL				
DRG. PERTAINS TO				
78-2-278				
SUBMITTED				
EXAMINED				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE				
ORDNANCE DEPT. U. S. A.				

P-42440

LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	ASSEMBLY	78-2-285
2	DETAILS	78-2-286
3	DETAILS	78-2-287
4		
5		



WHEN KRAFT WRAPPING PAPER IS USED AS OUTSIDE LAYER OF TUBES 78-2-287A AND 78-2-287B ASSEMBLY COVER AND COAT ENTIRE EXTERIOR SURFACE OF CONTAINER, INCLUDING ENDS, WITH ACID-PROOF BLACK PAINT, TYPE I. COATING MUST NOT INTERFERE WITH REMOVAL OF COVER.

CHARGE CONTAINER ASSEMBLY 78-2-285A 2

LIST OF PARTS

LINE NO.	NAME OF PART	NUMBER REQUIRED PER COMPONENT	PIECE-MARK	SIZE OR FORM	MATERIAL	GRADE	SPEC. NUMBER	APPROXIMATE WEIGHT (POUNDS)	APPROXIMATE VOLUME (CUBIC INCHES)	REMARKS
1	CHARGE CONTAINER ASSEMBLY		78-2-285A				50-61-3			
2	BODY ASSEMBLY		78-2-286A							
3	COVER ASSEMBLY		78-2-286B							
4										
5	END	2	78-2-286D	SHEET	STEEL	WD 1010	57-136			(a)
6										
7	RING	1	78-2-287D	SHEET	STEEL	WD 1010	57-136			(a)
8	TUBE COVER	1	78-2-287A	TUBING	+					
9	TUBE, INNER	1	78-2-287C	TUBING	++					
10	TUBE, OUTER	1	78-2-287B	TUBING	+					
11										
12					GLUE	II	3-102			(b)
13					LACQUER ENAMEL, BLACK	I	JAN-L-73			
14					PAINT, ACID-PROOF BLACK	TYPE I	JAN-P-450			
15										
16										

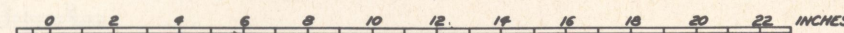
(a) ALTERNATIVE MATERIAL: STEEL FLAT ZINC-COATED SHEET, 6.5625 POUND PER SQUARE FOOT, CLASS E1 OR E2, SPEC. QQ-I-716.
 (b) WHEN PHOTO-FLASH POWDER, TYPE I, CLASS "A", IS USED, 23# MAX. WHEN PHOTO-FLASH POWDER, TYPE II, CLASS "A" OR "B" IS USED, 18# MAX.
 (c) WHEN PHOTO-FLASH POWDER, TYPE I, CLASS "A", IS USED, 23# MAX. WHEN PHOTO-FLASH POWDER, TYPE II, CLASS "A" OR "B" IS USED, 18# MAX.
 (d) ALTERNATIVE MATERIAL: DEXTRIN TYPE I, SPEC. JAN-D-232 FOR USE ONLY IN IMMERSING OPERATION OF END CRIMPS.

+ ASPHALT-FILLED WATERPROOF CHIPBOARD, SPEC. 50-11-80.
 WATERPROOF DUPLEX KRAFT WRAPPING PAPER, SPEC. 50-11-88.
 WATERPROOF WOOD MANILA PAPER, SPEC. 50-11-87.
 ASPHALT-IMPREGNATED KRAFT PAPER, SPEC. 50-11-77.
 KRAFT WRAPPING PAPER, 40LB, GRADE "B", SPEC. UU-P-268.
 GLUE, GRADE II, SPEC. 3-102 (b)
 ASPHALT, SPEC. 3-160.

++ ASPHALT-FILLED WATERPROOF CHIPBOARD, SPEC. 50-11-80.
 WATERPROOF DUPLEX KRAFT WRAPPING PAPER, SPEC. 50-11-88.
 GLUE, GRADE II, SPEC. 3-102 (b)
 ASPHALT, SPEC. 3-160.

LINE NO.	LIST OF SPECIFICATIONS	SPEC. NUMBER *	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM., GENERAL SPEC. FOR	50-0-1	DRG. 78-2-285
2	ASPHALT, FOR USE IN MANUFACTURE OF FIBER CONTAINERS	3-160	DRG. 78-2-287
3			
4	CHIPBOARD, WATERPROOF, ASPHALT-FILLED	50-11-80	DRG. 78-2-287
5	CONTAINERS, FIBER, SPIRALLY WOUND (FOR AMMUNITION)	50-61-3	DRG. 78-2-285
6			
7	GLUE (FOR USE IN THE LOADING OF AMMUNITION)	3-102	DRG. 78-2-287
8	DEXTRIN (FOR USE IN AMMUNITION)	JAN-D-232	DRG. 78-2-286
9			
10	IRON AND STEEL; SHEET, ZINC-COATED (GALVANIZED)	QQ-I-716	DRG. 78-2-286
11	LACQUER ENAMEL, LUSTRELESS	JAN-L-73	DRG. 78-2-286
12	METALS, GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-157	57-136
13			
14	PAINT, VARNISH, LACQUER AND RELATED MATERIALS; METHODS OF INSP ETC	TT-P-141	JAN-L-73
15	PAINT, ACID-PROOF BLACK, FOR AMMUNITION	JAN-P-450	DRG. 78-2-285
16	PAPER, GENERAL SPECIFICATIONS	UU-P-31	UU-P-268
17	PAPER, KRAFT, WRAPPING	UU-P-268	DRG. 78-2-287
18	PAPER, KRAFT, ASPHALT-IMPREGNATED	50-11-77	DRG. 78-2-287
19	PAPER, KRAFT, DUPLEX, WATERPROOF WRAPPING	50-11-88	DRG. 78-2-287
20	PAPER, WOOD MANILA, WATERPROOF	50-11-87	DRG. 78-2-287
21			
22			
23			
24	STEEL, CARBON AND ALLOY, SHEETS AND STRIPS	57-136	DRG. 78-2-286
25			
26			

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.



NOTICE: THIS DRAWING SHALL NOT BE USED NOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT BY ORDER OF THE STATES

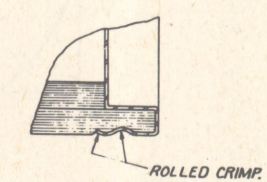
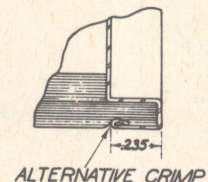
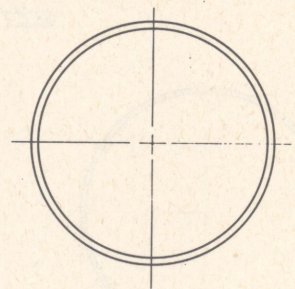
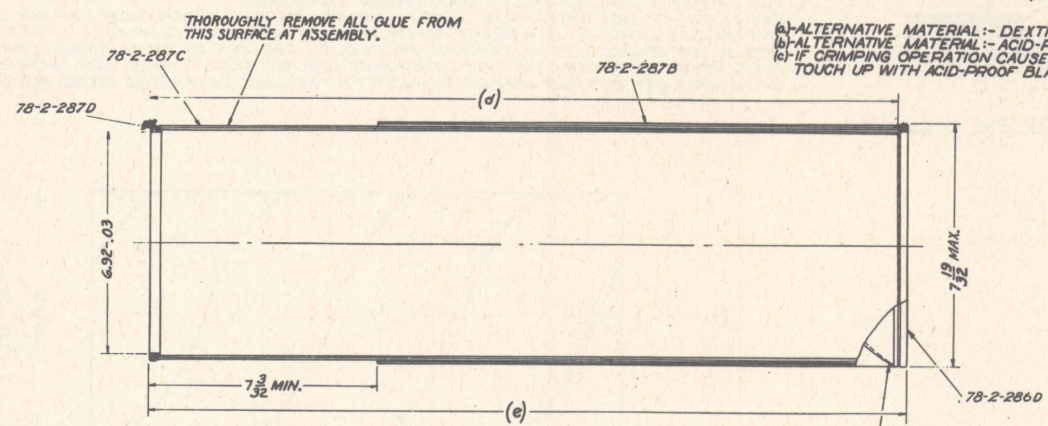
BOMB, PHOTO-FLASH, 100 LB, AN-M46. CHARGE CONTAINER ASSEMBLY.

APR. 22, 1942	CLASS	DIVISION	DRAWING	FILE
REVISIONS	78	2	285	
1 5-10-43				
2 7-16-43				
3 9-18-44				
4 9-23-49				
SYMBOL				
DRG. PERTAINS TO				
78-2-284				
SUBMITTED:				
OFFICER G.A.B. <i>J.C. Chert</i>				
ENGINEER <i>R.L. Bentley</i>				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:				
C.O.L., ORDN. DEPT., U.S.A.				
ORDNANCE DEPT. U.S.A.				

P-2744d

IMMERSE END OF TUBE IN BLACK ACID PROOF PAINT, TYPE I, (a) BEFORE CRIMPING END, (c). WHEN ASPHALT-IMPREGNATED KRAFT PAPER IS USED AS OUTSIDE LAYER OF TUBE, RECOAT METAL END WITH BLACK LACQUER ENAMEL. (b) AFTER CRIMPING OPERATION, ONLY THE EXPOSED BARE METAL SURFACES SHALL BE COATED.

(a) ALTERNATIVE MATERIAL:--DEXTRIN, TYPE I.
(b) ALTERNATIVE MATERIAL:--ACID-PROOF BLACK PAINT, TYPE I.
(c) IF CRIMPING OPERATION CAUSES CHIPPING OF COATING, TOUCH UP WITH ACID-PROOF BLACK PAINT, TYPE I, (a).



CRIMP THIS EDGE OF RING SO THAT NO SHARP CORNERS OR BURRS PROJECT.
RING MUST NOT EXTEND BEYOND OUTSIDE SURFACE OF TUBE AT ANY POINT.

ROLLED CRIMP.

ENLARGED SECTION SHOWING RING CRIMPED TO BODY ASSEMBLY

SCALE, $\frac{3}{1}$

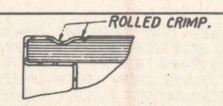
BODY ASSEMBLY 78-2-286A5
TUBES MUST BE SECURELY FASTENED WITHIN EACH OTHER WITH GLUE, GRADE II (a) TO MEET SPECIFIED TWIST TEST AFTER THOROUGHLY DRYING.

ASSEMBLE END TO COVER LAP AS SHOWN.

ENLARGED SECTION SHOWING END CRIMPED TO BODY ASSEMBLY

SCALE, $\frac{3}{1}$

(d) WHEN PHOTO-FLASH POWDER, TYPE I, CLASS 'A' IS USED.....23 $\frac{13}{32}$ MIN.
WHEN PHOTO-FLASH POWDER, TYPE I, CLASS 'A' OR 'B' IS USED.....17 $\frac{13}{32}$ MIN.
(e) WHEN PHOTO-FLASH POWDER, TYPE I, CLASS 'A' IS USED.....23 $\frac{13}{32}$ MAX.
WHEN PHOTO-FLASH POWDER, TYPE I, CLASS 'A' OR 'B' IS USED.....18 $\frac{13}{32}$ MAX.

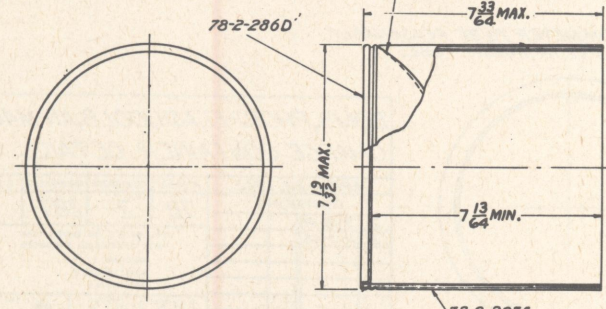


ENLARGED SECTION SHOWING END CRIMPED TO COVER TUBE.

SCALE, $\frac{3}{1}$



ASSEMBLE END TO COVER LAP AS SHOWN.

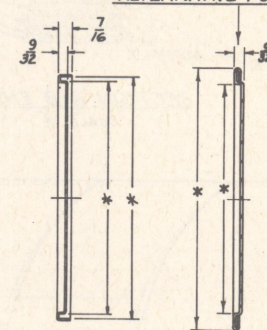
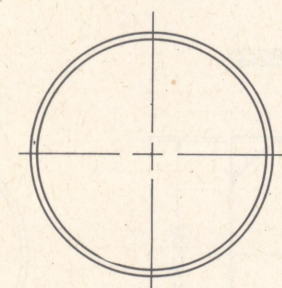


COVER ASSEMBLY 78-2-286B3

IMMERSE END OF TUBE IN BLACK ACID PROOF PAINT, TYPE I, (a) BEFORE CRIMPING END, (c). WHEN ASPHALT-IMPREGNATED KRAFT PAPER IS USED AS OUTSIDE LAYER OF TUBE, RECOAT METAL END WITH BLACK LACQUER ENAMEL. (b) AFTER CRIMPING OPERATION, ONLY THE EXPOSED BARE METAL SURFACES SHALL BE COATED.

(a) ALTERNATIVE MATERIAL:--DEXTRIN, TYPE I.
(b) ALTERNATIVE MATERIAL:--ACID-PROOF BLACK PAINT, TYPE I.
(c) IF CRIMPING OPERATION CAUSES CHIPPING OF COATING, TOUCH UP WITH ACID-PROOF BLACK PAINT, TYPE I, (a).

ALTERNATIVE FORM OF END



END 78-2-286D5

STEEL, NO. 100 COLD-ROLLED, TEMPER NO. 4 (SOFT SKIN-ROLLED)
FINISH NO. 2 (REGULAR BRIGHT), NO. 28 (.0149) US STANDARD GAGE

COAT ALL SURFACES OF UNPAINTED MATERIALS WITH BLACK LACQUER ENAMEL.
ALTERNATIVE MATERIAL:--ACID-PROOF BLACK PAINT, TYPE I.

* THESE DIMENSIONS MAY VARY TO SUIT MANUFACTURER'S METHOD OF OBTAINING CRIMP SHOWN ON ENLARGED VIEW.

SCALE, INCHES, $\frac{1}{2}$ $\frac{1}{4}$

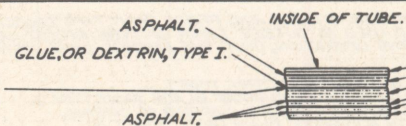
NOTICE: THIS DRAWING SHALL NOT BE USED NOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

BOMB, PHOTO-FLASH, 100 LB. AN-M46				
CHARGE CONTAINER DETAILS.				
APR. 22, 1942	CLASS	DIVISION	DRAWING	FILE
REVISIONS	78	2	286	
1 8-31-42				
2 5-10-43				
3 7-16-43				
4 9-18-44				
5 9-29-49				
SYMBOL				
DRG. PERTAINS TO	78-2-285			
SUBMITTED				
EXAMINED				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE				
ORDNANCE DEPT. U. S. A.				

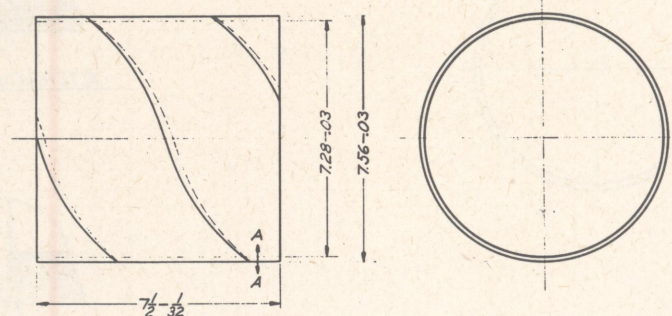
P-42442

HEAT TREATMENT AND FINAL FINISH

WHEN NECESSARY, USE ONE OR MORE LAYERS OF CHIPBOARD OR PAPER OF EQUAL OR BETTER GRADE, WITH MIN THICKNESS OF .01 INCH BETWEEN THESE LAYERS TO OBTAIN REQUIRED WALL THICKNESS.



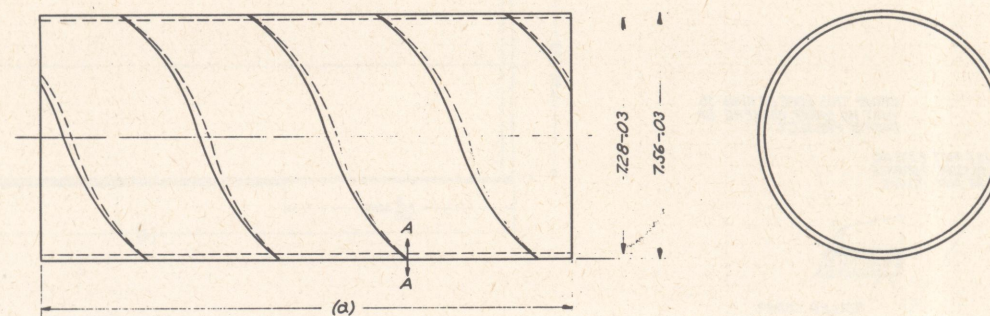
SECTION A-A ENLARGED
SCALE, $\frac{1}{2}$



TUBE, COVER 78-2-287A
WATERPROOF TUBING. (+ SEE LIST OF PARTS).

MINIMUM NUMBER OF LAYERS REQUIRED:-
ONE LAYER OF .01 WATERPROOF WOOD MANILA PAPER.
TWO LAYERS OF ASPHALT-FILLED WATERPROOF CHIPBOARD.
TWO LAYERS OF .007 WATERPROOF DUPLEX KRAFT WRAPPING PAPER. (MUST LAP NOT LESS THAN $\frac{1}{8}$ INCH).
ONE OUTSIDE LAYER OF .004 KRAFT PAPER, ASPHALT-IMPREGNATED, OR 40 LB KRAFT WRAPPING PAPER, TYPE B, MAY BE USED IF FINAL PAINTING PROCEDURE CALLED FOR ON ASSEMBLY DRAWING 78-2-285 IS PREFERRED. IN EITHER CASE THIS LAYER MUST LAP NOT LESS THAN $\frac{1}{8}$ INCH. BEFORE APPLYING LAST LAYER OF PAPER, COAT OUTSIDE SURFACE OF NEXT TO THE LAST LAYER AND INSIDE SURFACE OF LAST LAYER WITH ASPHALT.

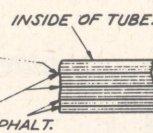
PHYSICAL PROPERTIES	
Y	
TS	
EL 2	
RED	
BR	
ROCK	



TUBE, OUTER 78-2-287B1
WATERPROOF TUBING. (+ SEE LIST OF PARTS).

(a) WHEN PHOTO-FLASH POWDER, TYPE I, CLASS A, IS USED..... $16\frac{3}{8} - \frac{1}{32}$.
WHEN PHOTO-FLASH POWDER, TYPE II, CLASS A OR B, IS USED..... $10\frac{7}{8} - \frac{1}{32}$.

WHEN NECESSARY, USE ONE OR MORE LAYERS OF CHIPBOARD OR PAPER OF EQUAL OR BETTER GRADE, WITH MIN THICKNESS OF .01 INCH BETWEEN THESE LAYERS TO OBTAIN REQUIRED WALL THICKNESS.

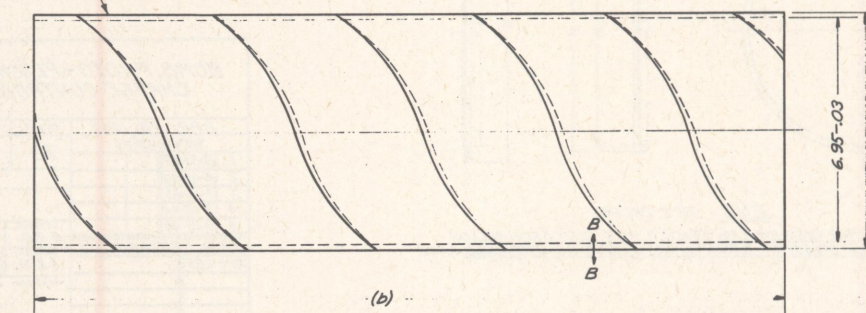


MINIMUM NUMBER OF LAYERS REQUIRED:-
THREE LAYERS OF ASPHALT-FILLED WATERPROOF CHIPBOARD.
TWO LAYERS OF .007 WATERPROOF DUPLEX KRAFT WRAPPING PAPER. (MUST LAP NOT LESS THAN $\frac{1}{8}$ INCH).

GLUE, OR DEXTRIN, TYPE I.

SECTION B-B ENLARGED
SCALE, $\frac{1}{2}$

SEAM AND ENTIRE OUTSIDE SURFACE MUST BE FREE FROM ASPHALT.

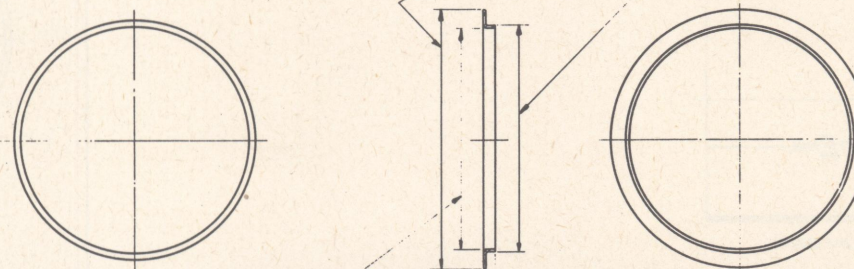


TUBE, INNER 78-2-287C1
WATERPROOF TUBING. (+ SEE LIST OF PARTS).

(b) WHEN PHOTO-FLASH POWDER, TYPE I, CLASS A, IS USED..... $23\frac{7}{32} - \frac{1}{32}$.
WHEN PHOTO-FLASH POWDER, TYPE II, CLASS A OR B, IS USED..... $17\frac{23}{32} - \frac{1}{32}$.

TO SUIT MANUFACTURER'S METHOD OF OBTAINING CRIMP SHOWN ON ENLARGED PARTIAL SECTION OF BODY ASSEMBLY, DRAWING 78-2-286.

THIS DIAMETER TO BE REASONABLY SNUG FIT IN INNER TUBE.



SNUG SLIDE FIT IN 78-2-287A AND 78-2-287B

(c) RING 78-2-287D3
STEEL, WIDIO COLD-ROLLED, TEMPER NO.4 (SOFT SKIN-ROLLED) FINISH NO.2 (REGULAR BRIGHT), NO.30 U.S. STANDARD GAGE.

(c) FOR ALTERNATIVE MATERIALS AND PROTECTIVE FINISH SEE DWG 78-2-285

BOMB, PHOTO-FLASH, 100LB, AN-M46.
CHARGE CONTAINER DETAILS.

APRIL 22, 1942		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	287	
2	9-18-44				
3	11-3-48				
		TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED			
		DECIMAL ±			
		FRACTIONAL ±			
		ANGULAR ±			
DRG. PERTAINS TO		GR.B	E.U.S.	W	ENGINEER
78-2-283		ACJ			ENGINEER
		SUBMITTED			
		EXAMINED			
		APPROVED BY ORDER OF THE CHIEF OF ORDNANCE			
		ORD. DEPT. U.S.A.			
		D			
		ORDNANCE DEPT. U.S.A.			

SUPERSEDES 78-2-287 WITHOUT CHANGE NOVEMBER 3, 1948

SCALE, INCHES, $\frac{1}{2}$

LIST OF PARTS										LIST OF DRAWINGS		LIST OF SPECIFICATIONS		SPEC. NUMBER	REQUIRED BY		
LINE NO.	NAME OF PART	NUMBER REQ. PER COMPONENT	PIECEMARK	SIZE OR FORM	KIND	GRADE	SPEC. NUMBER	APPROXIMATE UNIT WEIGHT (OUNCES)	APPROXIMATE WT. OF RAW STOCK PER UNIT ASSEMBLED	REMARKS	LINE NO.	DRAWING NUMBER	LINE NO.				
1	ILLUMINANT ASSEMBLY, WHITE STAR		78-2-300A					3.90			1	ILLUMINANT ASSEMBLY	78-2-300	1	AMMUNITION, EXCEPT SMALL ARMS AMM., GENERAL SPEC. FOR	50-0-1	DRG. 78-2-300
2	ILLUMINANT ASSEMBLY, GREEN STAR		78-2-300B					3.55			2	DETAILS	78-2-307	2			
3	ILLUMINANT ASSEMBLY, AMBER STAR		78-2-300C					3.17			3			3	ALUMINUM, PLATES AND SHEETS	QQ-A-561	DRG. 78-2-307
4	ILLUMINANT ASSEMBLY, RED STAR		78-2-300D					3.55			4			4	BOXBOARD	50-11-79	DRG. 78-2-307
5	SUSPENSION ASSEMBLY		78-2-307A					.20			5			5	CLAY, FIRE	HH-C-451	DRG. 78-2-307
6											6			6	CORD, PICTURE-WIRE	RR-C-596	DRG. 78-2-307
7	CABLE, SUSPENSION	1	78-2-307B	NO. 2	PICTURE-WIRE CORD		RR-C-596	.04		(b)	7			7	GLUE	3-102	DRG. 78-2-307
8	CAP	1	78-2-307C		STEEL	WD1010	57-136	.12			8			8	FELT, HAIR, FOR PACKING	B-144	DRG. 78-2-307
9	CASE	1	78-2-307D	SHEET	BOXBOARD		50-11-79	.42			9			9			
10	CHARGE, FIRST FIRE		78-2-300L		FIRST FIRE COMPOSITION		50-56-2	.30		(d)	10			10	METALS; GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	QQ-A-561
11	CHARGE, PRIMING	1	78-2-300K		BLACK POWDER	A-10RA-3	JAN-P-223	.03			11			11	OIL; LINSEED, BOILED	JJJ-0-331	DRG. 78-2-300
12	CHARGE, STAR, WHITE	1	78-2-300E		WHITE COMPOSITION, NO. 103		50-56-2	2.55			12			12	PAPER; GENERAL SPECIFICATIONS	UU-P-31	50-11-79
13	CHARGE, STAR, GREEN	1	78-2-300F		GREEN COMPOSITION, NO. 301		50-56-2	2.50			13			13	POWDER, BLACK	JAN-P-223	DRG. 78-2-300
14	CHARGE, STAR, AMBER	1	78-2-300G		AMBER COMPOSITION, NO. 401 OR 402		50-56-2	2.0			14			14	PYROTECHNICS; SPECIFICATION FOR WHITE AND COLORED COMPOSITIONS	50-56-2	DRG. 78-2-300
15	CHARGE, STAR, RED	1	78-2-300H		RED COMPOSITION, NO. 201 OR 202A		50-56-2	2.0			15			15	QUICK MATCH	JAN-Q-378	DRG. 78-2-307
16	COVER, REINFORCING	1	78-2-307E	COILED SHEET	ALUMINUM	TYPE 3, CLASS "A"	QQ-A-561	.12			16			16			
17	DISC, GAS CHECK	1	78-2-307U	SHEET	FELT HAIR		B-144			(a)	17			17	STEEL, CARBON AND ALLOY, SHEETS AND STRIPS	57-136	DRG. 78-2-307
18											18			18	VARNISH, SHELLAC	TT-V-91	DRG. 78-2-300
19	QUICKMATCH	1	78-2-307N	STICK	SIX STRAND	TYPE 3, CLASS "B"	JAN-Q-378	.01			19			19			
20	SEAL, TOP	1	78-2-300M		FIRE CLAY	"F"	HH-C-451	.25			20			20			
21	TAPE, SUSPENSION CABLE	1	78-2-307R		ADHESIVE TAPE		COMMERCIAL			(c)	21			21			
22											22			22			
23					GLUE		3-102				23			23			
24					OIL, LINSEED	TYPE "A"	JJJ-0-331				24			24			
25					PASTE, FLOUR		COMMERCIAL				25			25			
26					ROSIN		COMMERCIAL				26			26			
27					SOLDER, TIN-LEAD		COMMERCIAL				27			27			
28					VARNISH, SHELLAC, ORANGE	B, MEDIUM	TT-V-91				28			28			

(a) MATERIAL EQUAL TO FELT, HAIR, TYPE II, CLASS "B", SPEC. B-144 MAY BE USED.
(b) CLASS "B" OR GALVANIZED.
(c) USE OF TAPE, SUSPENSION CABLE, 78-2-307R IS OPTIONAL.

SEAL TOP 78-2-300M 4
APPROX. 25% OF FIRE CLAY FINE
ADD 25% BY WEIGHT LINSEED OIL, TYPE "A"
PRESS AT 3000 LBS PER SQUARE INCH.

(d) CHARGE, FIRST FIRE 78-2-300L 4
APPROX. 30% OF FIRST FIRE COMPOSITION
PRESS AT 1000 LBS PER SQUARE INCH.
(d) USED ONLY WHEN WHITE STAR CHARGE IS USED.

COAT END OF CASE WITH ORANGE SHELLAC
VARNISH, GRADE "B", MEDIUM BODY, BEFORE
ASSEMBLING REINFORCING COVER.

IF DESIRED, ENDS OF QUICKMATCH NEED NOT
BE TIED TOGETHER.

CHARGE, STAR
PRESS AT 3000 LBS PER SQUARE INCH.

CHARGE, PRIMING 78-2-300K 4
APPROX. 0.3% OF BLACK POWDER
GRADE "A" OF "A-3", GLAZED OR UNGLAZED
PRESS AT 1000 LBS PER SQUARE INCH.

SECURE REINFORCING COVER TO CASE BY STAKING LIGHTLY IN
FOUR PLACES, APPROXIMATELY EQUALLY SPACED, AROUND
PERIPHERY. STAKES TO BE APPROXIMATELY 1/2 INCH
FROM EDGE OF COVER, 1/2 DIA MAX AND SHALL NOT PASS
THROUGH OR FORM INDENTATION ON INTERIOR OF CASE.

ILLUMINANT ASSEMBLY

ILLUMINANT ASSEMBLY PIECE MARK	STAR COLOR	CANDLE POWER MIN.	BURNING TIME	COLOR VALUE MIN.
78-2-300A 4	WHITE	20,000	20 TO 30 SEC	RED 17 MAX GREEN 28 MAX
78-2-300B 4	GREEN	5,000	20 TO 30 SEC	.39
78-2-300C 4	AMBER	4,000	20 TO 30 SEC	.055
78-2-300D 4	RED	20,000	20 TO 30 SEC	.44

SCALE, INCHES 2/7

THIS DRAWING APPLIES TO THE FOLLOWING
SIGNALS, GROUND, PARACHUTE:-
WHITE STAR _____ M17A1 AND M17A1B2
GREEN STAR _____ M19A1 AND M19A1B2
AMBER STAR _____ M21A1 AND M21A1B2
RED STAR _____ M51A1 AND M51A1B2

SUPER SEDES 78-2-300, 78-2-302, 78-2-304 AND
78-2-334 WITH CHANGE AUGUST 15, 1945.

SIGNAL, GROUND, STAR, PARACHUTE
(FOR USE WITH GRENADE LAUNCHER M7 & M8)
ILLUMINANT ASSEMBLY AND DETAILS.

FEBRUARY 12, 1943

REVISIONS

NO.	DATE	DESCRIPTION
4	8-15-45	
5	3-24-49	

CLASS 78 DIVISION 2 DRAWING 300

TOLERANCE ON DIMENSIONS
NOT OTHERWISE SPECIFIED

DECIMAL ±
FRACTIONAL ±
ANGULAR ±

DRG. PERTAINS TO

OFFICER W.F.C. TRACER W.F.C. ENGINEER

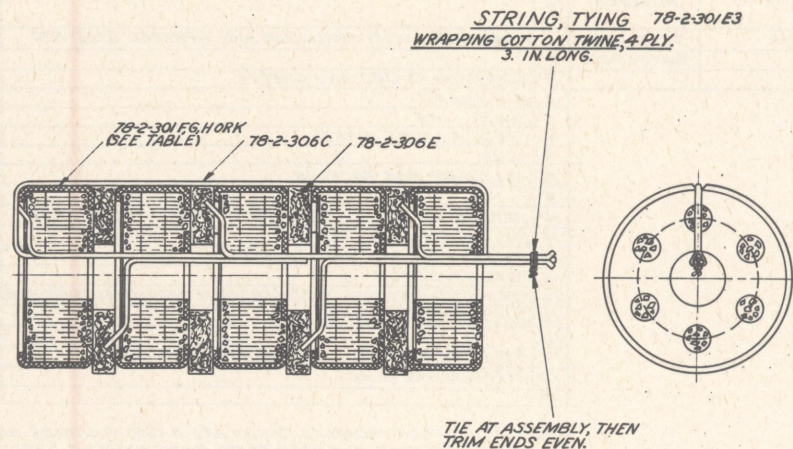
CHECKER G.W.A. 60

SUBMITTED: [Signature]

EXAMINED: [Signature]

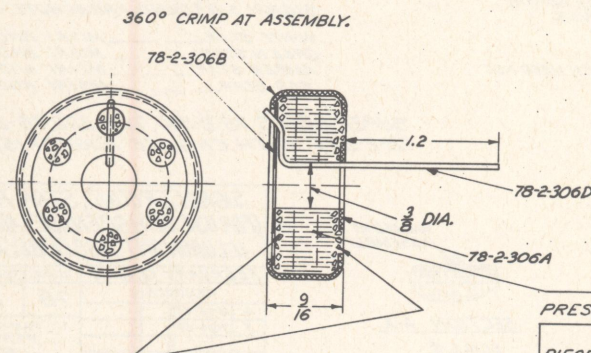
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:
C.S. Reed [Signature]
COL. ORD. DEPT. U.S.A.

ORDNANCE DEPT. U.S.A.



ILLUMINANT ASSEMBLY

PIECEMARK	STAR COLOR	STAR ASSEMBLY
78-2-301A3	WHITE	78-2-301 F
78-2-301B3	GREEN	78-2-301 G
78-2-301C3	AMBER	78-2-301 H
78-2-301D3	RED	78-2-301 K



CHARGE, STAR

PRESS AT 32,000 LBS. TOTAL PRESSURE

PIECEMARK	COLOR	COMPOSITION	APPROX WT OZ.
78-2-301L3	WHITE	WHITE COMPOSITION	.8
78-2-301M3	GREEN	GREEN COMPOSITION	.8
78-2-301N3	AMBER	AMBER COMPOSITION	.7
78-2-301P3	RED	RED COMPOSITION	.75

STAR ASSEMBLY

PIECEMARK	STAR COLOR	CANDLE POWER MIN.	BURNING TIME	COLOR VALUE MIN.
78-2-301F3	WHITE	18,000	4.70 TO 10. SEC	RED 17 MAX
78-2-301G3	GREEN	7,000	4.70 TO 10. SEC	.33
78-2-301H3	AMBER	2,000	4.70 TO 10. SEC	.048
78-2-301K3	RED	35,000	4.70 TO 10. SEC	.41

CHARGE PRIMING 78-2-301Q3
APPROX. 0.50 OZ. BLACK POWDER GRADE "A1" OR "A3", GLAZED OR UNGLAZED
PRESS AT 32,000 LBS. TOTAL PRESSURE.

LIST OF PARTS

LINE NO.	NAME OF PART	NUMBER REQD PER COMPONENT	PIECEMARK	SIZE OR FORM	MATERIAL	GRADE	SPEC. NUMBER	APPROXIMATE UNIT WEIGHT (OUNCES)	APPROX. GROSS WT. OF RAW STOCK PER 100 ASSEMBLIES	REMARKS
1	ILLUMINANT ASSEMBLY, WHITE STAR		78-2-301A					5.30		
2	ILLUMINANT ASSEMBLY, GREEN STAR		78-2-301B					5.30		
3	ILLUMINANT ASSEMBLY, AMBER STAR		78-2-301C					4.80		
4	ILLUMINANT ASSEMBLY, RED STAR		78-2-301D							
5	STAR ASSEMBLY, WHITE		78-2-301F					1.02		
6	STAR ASSEMBLY, GREEN		78-2-301G					1.02		
7	STAR ASSEMBLY, AMBER		78-2-301H					.92		
8	STAR ASSEMBLY, RED		78-2-301K							
9										
10	CHARGE, PRIMING	5	78-2-301Q		BLACK POWDER	A1 OR A3	JAN-P-223	.05		
11	CHARGE, STAR, WHITE	5	78-2-301L		WHITE COMPOSITION, NO. 105		50-56-2	.8		
12	CHARGE, STAR, GREEN	5	78-2-301M		GREEN COMPOSITION, NO. 301A		50-56-2	.8		
13	CHARGE, STAR, AMBER	5	78-2-301N		AMBER COMPOSITION, NO. 402B OR 410		50-56-2	.7		
14	CHARGE, STAR, RED	5	78-2-301P		RED COMPOSITION, NO. 202A OR 203		50-56-2	.75		
15	CUP	5	78-2-306A	SHEET	ALUMINUM	TYPE 2, SOFT	QQ-A-561	.13		
16										
17	DISC	5	78-2-306B	SHEET	ALUMINUM	TYPE 2, HALF-HARD	QQ-A-561	.02		
18	QUICK MATCH	1	78-2-306C	STICK	FOUR STRAND	TYPE I, CLASS B	JAN-Q-378	.08		
19	QUICK MATCH, STAR	5	78-2-306D	STICK	FOUR STRAND	TYPE I, CLASS B	JAN-Q-378	.02		
20										
21	STRING, TYING	1	78-2-301E	CONE	COTTON		T-T-871			
22	WAD, CUSHIONING	4	78-2-306E		FELT, HAIR	TYPE II, CLASS B	B-144	.03		(a)
23										
24										

(a) MATERIAL EQUAL TO FELT, HAIR, TYPE II, CLASS "B", SPEC. B-144 MAY BE USED

LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	ASSEMBLY	78-2-301
2	DETAILS	78-2-306
3		

LIST OF SPECIFICATIONS

LINE NO.	SPEC NUMBER	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM., GENERAL SPEC FOR	50-0-1 DRG 78-2-301
2		
3	ALUMINUM, PLATES AND SHEETS	QQ-A-561 DRG 78-2-306
4	FELT, HAIR, FOR PACKING	B-144 DRG 78-2-306
5		
6	METALS; GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151 QQ-A-561
7		
8	POWDER, BLACK	JAN-P-223 DRG 78-2-301
9	PYROTECHNICS; SPECIFICATION FOR WHITE AND COLORED COMPOSITIONS	50-56-2 DRG 78-2-301
10	QUICK MATCH	JAN-Q-378 DRG 78-2-306
11	TEXTILES; GENERAL SPECIFICATIONS, TEST METHODS	CCC-T-191 T-T-871
12	TWINE-COTTON, WRAPPING	T-T-871 DRG 78-2-301

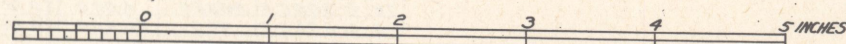
* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY EXCEPT THOSE REFERRED TO IN SPECIFICATION 50-56-2.

THIS DRAWING APPLIES TO THE FOLLOWING SIGNALS, GROUND, CLUSTER:-
WHITE STAR----- M18A1 AND M18A1 B2
GREEN STAR----- M20A1 AND M20A1 B2
AMBER STAR----- M22A1 AND M22A1 B2
RED STAR----- M52A1 AND M52A1 B2

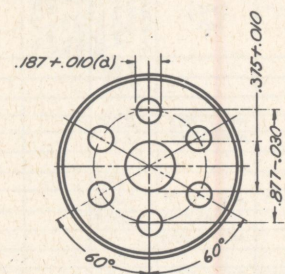
SUPERSEDES 78-2-301, 78-2-303, 78-2-305 AND 78-2-335 WITH CHANGE AUGUST 15, 1945.

SIGNAL, GROUND, STAR, CLUSTER
(FOR USE WITH GRENADE LAUNCHER M78M8)
ILLUMINANT ASSEMBLY AND DETAILS

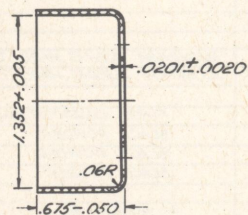
FEBRUARY 12, 1943		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	301	
3	8-15-45				
4	3-24-49				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED DECIMAL 2 FRACTIONAL 2 ANGULAR 2					
DRG. PERTAINS TO		CHECKER	ENGINEER		
78-0-38		G.W.R.	J.W.F.		
SUBMITTED:					
EXAMINED:					
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:					
C.S. Reed					
COL. ORDN. DEPT. U.S.A.					
ORDNANCE DEPT. U.S.A.					



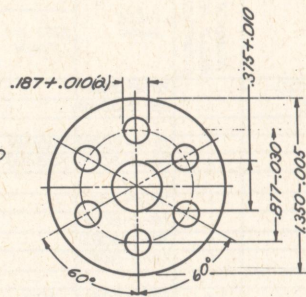
HEAT TREATMENT AND FINAL FINISH



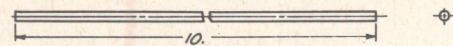
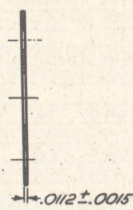
CUP 78-2-306A4
ALUMINUM, TYPE 2, SOFT



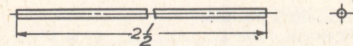
(g) HOLES NOT REQUIRED WHEN
USED IN M62, M64, M65 OR
M66 SIGNALS.



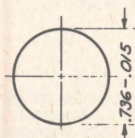
DISC 78-2-306B3
ALUMINUM, TYPE 2, HALF HARD
DIMENSIONS, EXCEPT THICKNESS,
CONTROL TOOL MANUFACTURE.



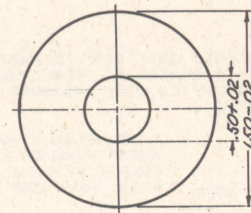
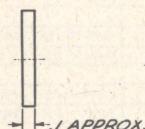
QUICKMATCH 78-2-306C
TYPE I, CLASS B



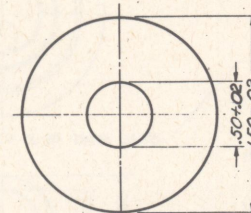
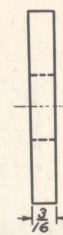
QUICKMATCH, STAR 78-2-306D
TYPE I, CLASS B



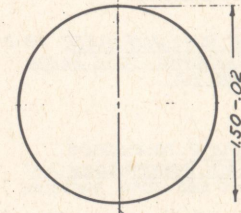
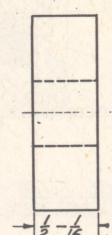
PELLET, POWDER 78-2-306H3
APPROXIMATELY 1.03 GRAMS BLACK POWDER, GRADE A-4 OR A-5
PRESSED UNDER 2800 TO 3200 LBS TOTAL PRESSURE.



WAD, CUSHIONING 78-2-306E3
FELT, HAIR, TYPE II, CLASS B
DIAMETER DIMENSIONS CONTROL TOOL MANUFACTURE.



WAD 78-2-306G3
FELT, HAIR, TYPE II, CLASS B
DIAMETER DIMENSIONS CONTROL TOOL MANUFACTURE



DISC, RETAINING 78-2-306F
TISSUE PAPER, 16 OR 18 LB PER 1000 SHEETS
21 X 32, COMMERCIAL
DIAMETER DIMENSIONS CONTROL TOOL MANUFACTURE.

PHYSICAL PROPERTIES	
Y.T.	
T.S.	
EL. 2	
RED.	
BR.	
ROCK.	

THIS DRAWING IS FOR USE WITH SIGNALS, GROUND,

M18A1	M18A1B2	M62
M20A1	M20A1B2	M64
M22A1	M22A1B2	M65
M52A1	M52A1B2	M66

NOTICE—THIS DRAWING SHALL NOT BE
USED NOR REPRODUCED EITHER WHOLLY
OR IN PART EXCEPT WHEN AUTHORIZED
IN CONNECTION WITH UNITED STATES
GOVERNMENT PROCUREMENT.

SIGNAL, GROUND, CLUSTER (FOR
USE WITH GRENADE LAUNCHER,
M7 & M8), DETAILS.

REVISIONS	CLASS	DIVISION	DRAWING	FILE
4 1-10-48	78	2	306	
5 12-28-48				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED DECIMAL ± FRACTIONAL ± ANGULAR ±				
DRG. PERTAINS TO				
78-0-381				
78-0-106				
SUBMITTED:				
O.P. Reeman				
ORD. ENG., ORD. DEPT. U.S.A.				
EXAMINED:				
C. N. Datta				
COL., ORD. DEPT. U.S.A.				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:				
H. J. ...				
COL., ORD. DEPT. U.S.A.				
ORDNANCE DEPT. U.S.A.				

SUPERSEDES 78-2-306 WITHOUT CHANGE DEC 28, 1948

REMOVE ALL BURRS.

SCALE, INCHES 2.

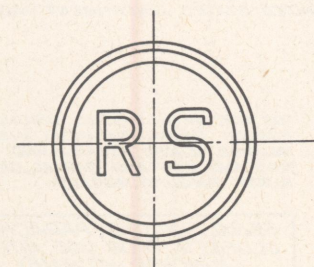
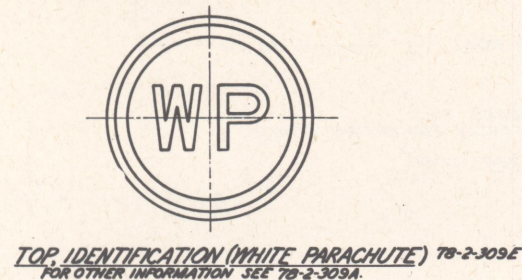
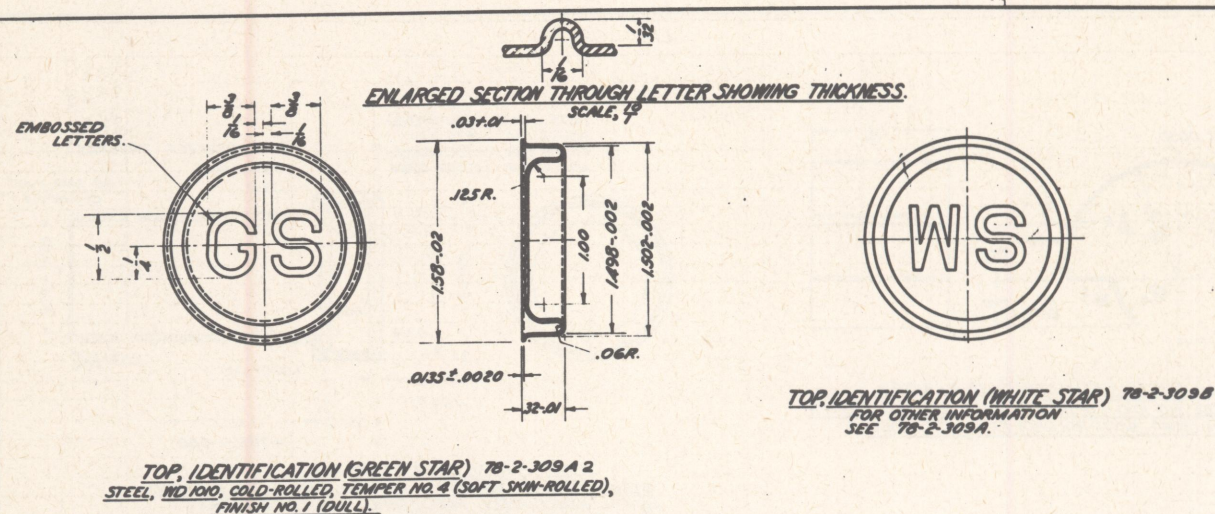
SUPERSEDES 78-2-308 WITHOUT CHANGE DEC 28, 1948

(A) FUZE COMPOSITION
FUZE POWDER, TYPE I-----67% SPEC 50-14-G.
POTASSIUM NITRATE, CLASS b-----33% SPEC JAN-P-156.
BURNING TIME TO BE 6 SECONDS APPROX ADJUST TO BE CONSISTENT WITH 600 FT MIN PROJECTION HEIGHT.
NOTES:- PERCENTAGES ARE BY WEIGHT
(c) EXCEPT TENSILE STRENGTH TO BE 20,000 LBS PER SQ IN. MIN.
(d) ALTERNATIVE MATERIAL:- ROD, ALUMINUM ALLOY, CONDITION T, SPEC QQ-A-354.
(e) ALTERNATIVE MATERIAL:- ALUMINUM ALLOY, CONDITION 'A', SPEC QQ-A-354.

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

SIGNAL, GROUND (PARACHUTE AND CLUSTER). (FOR USE WITH GRENADE LAUNCHER, M7 & M8). BODY ASSEMBLY AND DETAILS.

FEBRUARY 12, 1943						CLASS	DIVISION	DRAWING	FILE
REVISONS						78	E	308	
G	1-10-48					TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED			
7	12-28-48					DECIMAL S			
						FRACTIONAL S			
						ANGULAR S			
						DITTMAN			
						E.H.F.			
						TRACER			
						R.E.C.			
						ENGINEER			
						J.M.K.			
DRG. PERTAINS TO						SUBMITTED:			
78-0-37						W.P. Beeman			
78-0-38						ORD. ENG., ORD. DEPT. U.S.A.			
						EXAMINED:			
						C. Pate			
						COL., ORD. DEPT. U.S.A.			
						APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:			
						P. J. ...			
D						ORDNANCE DEPT., U.S.A.			
						COL., ORD. DEPT. U.S.A.			



FOR USE WITH SIGNALS, GROUND, M17A1 TO
M22A1, INCLUSIVE, M51A1 AND M52A1.

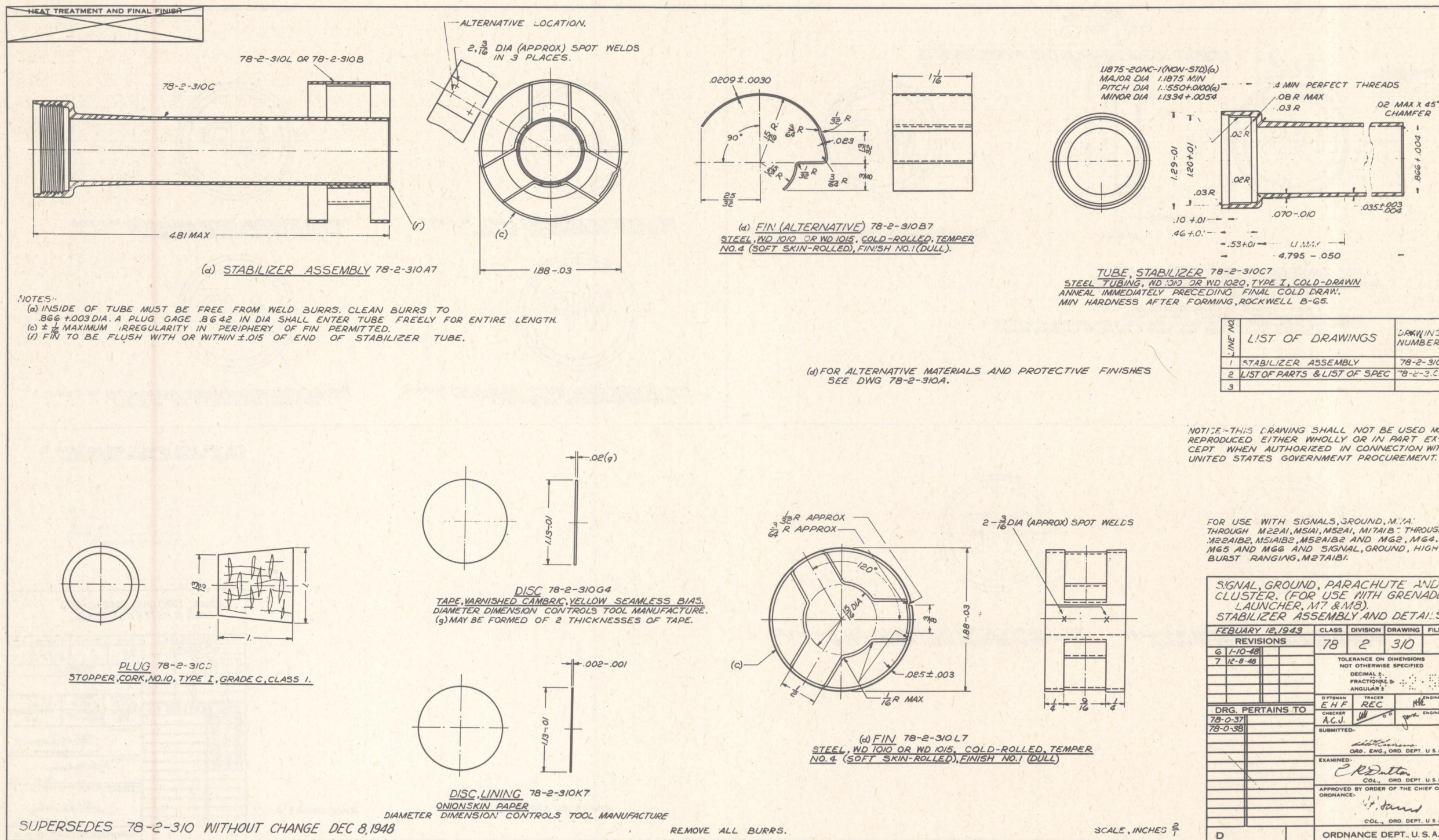
NOTICE: THIS DRAWING IS
NOT TO BE USED FOR
REPRODUCTION OR
FOR ANY OTHER
PURPOSE WITHOUT
THE WRITTEN
CONSENT OF THE
GOVERNMENT.

SIGNAL, GROUND, (PARACHUTE AND CLUSTER) DETAILS.			
DATE	CLASS	DIVISION	DRAWING FILE
FEBRUARY 12, 1943	78	2	309
REVISIONS			
1 8-18-43			
2 10-25-43			
SYMBOL			
DRG. PERTAINS TO			
78-0-37			
78-0-38			
78-0-39			
78-0-40			
78-0-41			
78-0-42			
SUBMITTED			
EXAMINED			
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE			
ORDNANCE DEPT., U. S. A.			

REMOVE ALL BURRS.

SCALE, INCHES, 3/4.

78-2-309A



SUPERSEDES 78-2-310 WITHOUT CHANGE DEC 8, 1948

LIST OF PARTS									
LINE NO	NAME OF PART	NUMBER REQUIRED PER COMPONENT	PIECE MARK	MATERIAL			SPEC NUMBER	APPROXIMATE UNIT WEIGHT (OUNCES)	REMARKS
				SIZE OR FORM	KIND	GRADE			
1	STABILIZER ASSEMBLY		78-2-310A					4.90	(b)
2									
3									
4									
5									
6	DISC	1	78-2-310G		TAPE, VARNISHED CAMBRIC	COMMERCIAL		.02	
7	DISC LINING	1	78-2-310K		ONIONSKIN PAPER	JAN-P-157			
8	FIN (ALTERNATIVE)		78-2-310B	SHEET OR STRIP	STEEL	W40000RMS	57-136	.24	(a)
9									
10	FIN	1	78-2-310L	SHEET OR STRIP	STEEL	W40000RMS	57-136	.70	(a)(1)
11		1							
12	PLUG	1	78-2-310D	NO. 10	STOPPER, CORK	TYPE 1, CLASS 2	LLL-S-731	.11	
13									
14	TUBE, STABILIZER	1	78-2-310C	TUBING	STEEL, COLD-DRAWN	TYPE 1, CLASS 2	57-100	1.97	(c)
15									
16									
17									
18									
19									
20									

(a) ALTERNATIVE MATERIAL: STEEL, SHEET, WD 1010 OR 1015, HOT-ROLLED, ANNEALED AND PICKLED, SPEC 57-136
 (b) PROTECTIVE FINISH: TYPE I, CLASS RS OR RSC, OR TYPE II, CLASS B, SPEC 57-0-2
 (c) ANNEALED IMMEDIATELY PRECEDING FINAL COLD DRAW
 (1) NOT REQUIRED WHEN FIN (ALTERNATIVE) 78-2-310B IS USED

LINE NO	LIST OF SPECIFICATIONS	SPEC NUMBER	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM, GENERAL SPEC FOR	50-0-1	DWG 78-2-310
2			
3	FINISHES, PROTECTIVE, FOR IRON AND STEEL PARTS	57-0-2	DWG 78-2-310
4			
5	METALS, GENERAL SPECIFICATIONS FOR INSPECTION OF	QQ-M-151	57-136
6			
7	PAPER, ONIONSKIN	JAN-P-157	DWG 78-2-310
8	PAPER, GENERAL SPECIFICATION	UU-P-31	JAN-P-157
9			
10			
11			
12	STEEL, CARBON AND ALLOY, SHEETS AND STRIPS	57-136	DWG 78-2-310
13	STOPPERS, CORK	LLL-S-731	DWG 78-2-310
14	TUBING, MECHANICAL OR STRUCTURAL, STEEL, CARBON AND ALLOY, ER	57-180	DWG 78-2-310
15			
16			
17			

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

NOTICE: THIS DRAWING SHALL NOT BE USED NOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

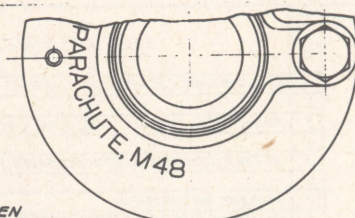
SIGNAL GROUND PARACHUTE AND CLUSTER (FOR USE WITH GRENADE LAUNCHER M74 M8) STABILIZER ASSEMBLY AND DETAILS, LIST OF PARTS AND LIST OF SPECIFICATIONS.			
FEBRUARY 12, 1948		CLASS	DIVISION
REVISIONS		78	2
5 1-10-48			310A
6 12-28-48			
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED			
DECIMAL ±			
FRACTIONAL ±			
ANGULAR ±			
DRG. PERTAINS TO	CHECKER	TRACER	ENGINEER
78-2-310	E.H.F.	E.V.S.	J.M.E.
	A.C.J.	J.W.	
SUBMITTED:		ENGINEER	
D.P. Beeman			
ORD. DEPT. U.S.A.			
EXAMINED:		ENGINEER	
C.P. O'Neil			
ORD. DEPT. U.S.A.			
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:			
J. H. Jones			
ORD. DEPT. U.S.A.			
ORDNANCE DEPT. U.S.A.			

SUPERSEDES 78-2-310A WITHOUT CHANGE DEC 28, 1948

NOTES:-
(a) THESE PARTS ONLY TO BE ASSEMBLED BY METAL PARTS MANUFACTURER.
(b) MAXIMUM ALLOWABLE ECCENTRICITY BETWEEN INSIDE DIAMETER OF TUBE (2.365 ± .014) AND 1.68 MIN. DIAMETER HOLE IN BASE, WHEN ASSEMBLED ± .01 INCH.
(c) THE EXTERIOR SURFACE OF PERMANENT ASSEMBLY OF TUBE, BASE AND NIPPLE MUST BE PAINTED AS A UNIT WITH ONE COAT OF LACQUER RESISTING SYNTHETIC PRIMER AND ONE COAT OF OLIVE DRAB LACQUER ENAMEL OR ENAMEL. THE INSIDE OF TUBE TO BE COATED WITH LACQUER RESISTING SYNTHETIC PRIMER.
(d) THE JOINTS OF THIS ASSEMBLY, BETWEEN BASE AND TUBE AND BETWEEN BASE AND NIPPLE, MUST WITHSTAND AN AIR PRESSURE TEST OF TWENTY-FIVE POUNDS PER SQUARE INCH WITHOUT LEAKAGE.

(a) 78-2-319C
1/8 DIA X 7 LONG BRAZING WIRE, 360° BRAZE.
SOLDER TO SHOW AT JOINT AROUND ENTIRE CIRCUMFERENCE.

(a) 78-2-319B



78-2-319H

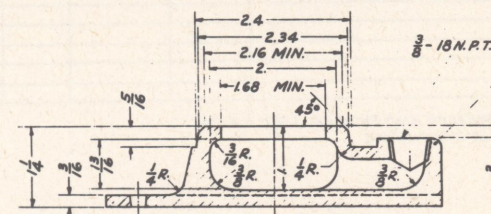
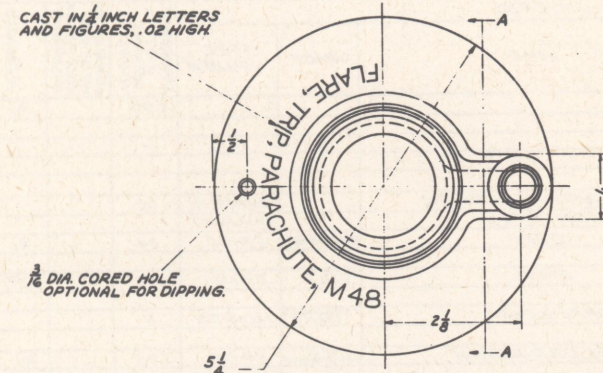
FUZE BASE (NOT FURNISHED BY METAL PARTS MANUFACTURER.)

78-2-320Q (a)

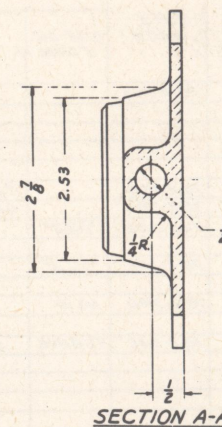
TIGHT WATERPROOF JOINT. COAT THREADS WITH LACQUER RESISTING SYNTHETIC PRIMER, PETTMAN CEMENT OR N.R.C. COMPOUND AND ASSEMBLE WHILE WET.

METAL PARTS ASSEMBLY 78-2-319AS

CAST IN 1/4 INCH LETTERS AND FIGURES, .02 HIGH

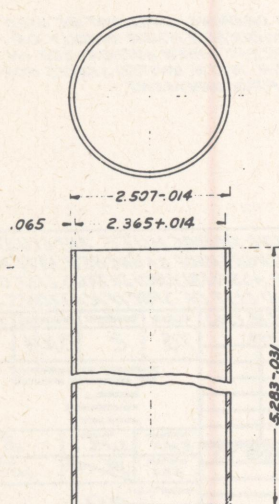
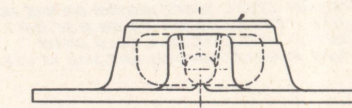


BASE 78-2-319B5
CAST IRON, CLASS 20

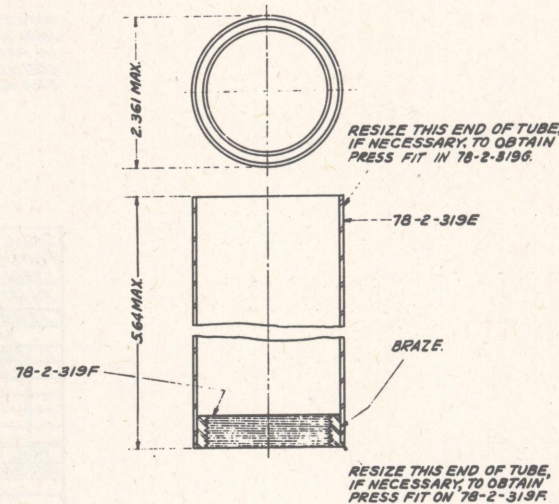


SECTION A-A

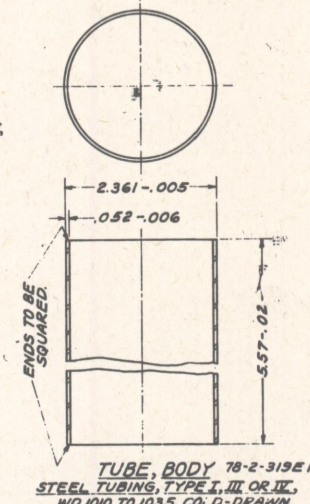
DISC GRIND.



TUBE 78-2-319C
C.D.S. TUBING, WD 1010 TO 1035, TYPE III



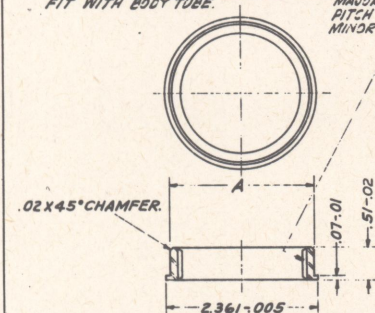
BODY TUBE ASSEMBLY 78-2-319D5



TUBE, BODY 78-2-319E1
STEEL TUBING, TYPE I, III OR IV, WD 1010 TO 1035, COLD-DRAWN, FINISH "F"
STANDARD SIZE TUBING MAY BE USED AND OUTSIDE DIAMETER MAY BE MACHINED TO DIMENSION SHOWN.

A - DIMENSION TO BE CONTROLLED TO GIVE .002 TO .009 CLEARANCE FIT WITH BODY TUBE.

2-20N1-1
MAJOR: 2.000 MIN.
PITCH: 1.9675 ± .0078
MINOR: 1.9459 ± .0054

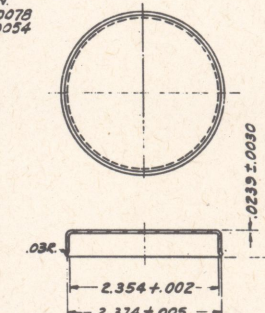


ADAPTER 78-2-319F3
STEEL, WD 1010 TO 1020, COLD-DRAWN, FINISH "F"

MAY BE STAMPED FROM STEEL, WD 1010 TO 1020.
ALTERNATIVE MATERIAL: TUBING, STEEL, TYPE I, III OR IV, WD 1010 TO 1035, COLD-DRAWN.

FOR PROTECTIVE FINISHES, SEE DRG. 78-0-45A.

REMOVE ALL BURRS.

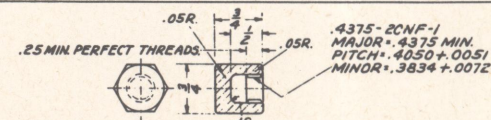


COVER TUBE 78-2-319G5
STEEL, WD 1010 TO 1020, COLD-ROLLED, TEMPER NO. 1 (HARD), NO. 2 (HALF-HARD), NO. 3 (QUARTER-HARD), NO. 4 (SOFT SKIN-ROLLED) OR NO. 5 (DRAG-APP), FINISH NO. 1 (BULL)



WASHER 78-2-319K2
FIBER, HARD RED VULCANIZED

SCALE, INCHES, 1/2



COVER, BASE, FIRING 78-2-319H2
MALLEABLE IRON CASTING, COMMERCIAL
FINISH COAT OUTSIDE SURFACE WITH OLIVE DRAB LACQUER ENAMEL OR ENAMEL AND APPLY A LIGHT COAT OF SHELL GREASE TO THREADS.
ALTERNATIVE MATERIAL: CAST IRON, CLASS 20.

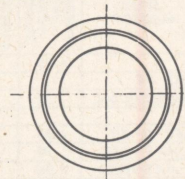
(V) TRACING WAS REVISED DURING LIMITED PROCUREMENT.

FLARE, TRIP, PARACHUTE, M48
DETAILS.

REVISIONS	CLASS	DIVISION	DRAWING	FILE
1 8-16-43	78	2	319	
2 5-2-43				
3 10-20-43				
4 12-7-43				
5 18-15-45				
DRG. PERTAINS TO				
78-0-45				
SUBMITTED				
EXAMINED				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE				
ORD. DEPT. U.S.A.				
ORD. DEPT. U.S.A.				

NOTE (a):

COAT THIS SURFACE WITH ORANGE SHELLAC VARNISH, GRADE 10 OR 11, MEDIUM BODY, AT ASSEMBLY.



CLOTH FACE OF FUZE DISC TO BE UPPER, NOT AT ASSEMBLY.

78-2-320L

SEE NOTE (c)

78-2-320AA

SEE NOTE (a)

78-2-320G

SEE NOTE (a)

LEVEL CHARGE IN GROOVE, PRESS SEAL, RING AND CHARGE, FUZE IN SAME OPERATION, UNDER TOTAL LOAD OF 15000 LBS.

FUZE ASSEMBLY 78-2-320A4

(b) FUZE COMPOSITION

FUZE POWDER, TYPE I ----- 90% SPEC. 50-14-6
POTASSIUM NITRATE, CLASS "B" ----- 10% SPEC. 50-11-26
ADJUST TO GIVE BURNING TIME OF 2 1/2 TO 3 1/2 SECONDS.

NOTE: ALL PERCENTAGES ARE BY WEIGHT.

NOTE (c): COAT THIS SURFACE WITH PHENOL FORMALDEHYDE RESIN VARNISH AT ASSEMBLY.
ALTERNATIVE MATERIAL: GLUE.

CHARGE 78-2-320B4
APPROX. 25 GRAINS, LOOSE
BLACK POWDER, GRADE "A-4"

CHARGE, INNER 78-2-320C4
APPROX. 82 GRAIN, BLACK
POWDER, GRADE "A-4"

PRESS AT 500 LBS. TOTAL PRESSURE.

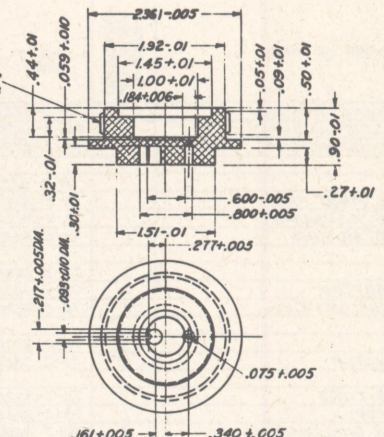
2-20NS-1
MAJOR = 1.9985 ± .0102
PITCH = 1.9860 ± .0078
MINOR = 1.9372 MAX.

CHARGE, INTERMEDIATE 78-2-320D4
APPROX. 4 MILLIGRAMS, LOOSE
BLACK POWDER, GRADE "A-4"

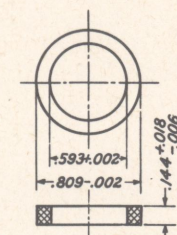
CHARGE, FUZE 78-2-320E
APPROX. 18.5 GRAINS, FUZE COMPOSITION (b)
PRESS AT 3000 LBS. TOTAL PRESSURE.

CHARGE, IGNITING 78-2-320F4
APPROX. 1.4 GRAINS, BLACK
POWDER, GRADE "A-4"

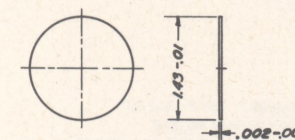
PRESS AT 500 LBS. TOTAL PRESSURE.



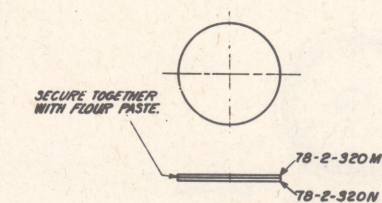
HOUSING, FUZE 78-2-320AA4
ALUMINUM-ALLOY, CONDITION "I"
FINISH



SEAL RING 78-2-320G4
ALUMINUM ALLOY (AL-17), CONDITION "A"
ALTERNATIVE MATERIAL: ALUMINUM ALLOY (AL-24),
CONDITION "A"



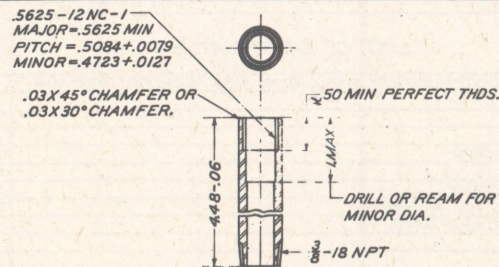
DISC, FUZE 78-2-320M
ONIONSKIN PAPER
DIAMETER DIMENSION CONTROLS
TOOL MANUFACTURE.



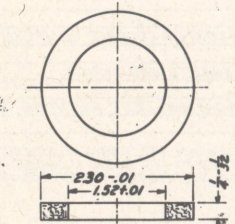
FUZE DISC ASSEMBLY 78-2-320L



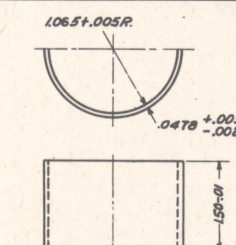
DISC, FUZE, LOWER 78-2-320N
CHEESE CLOTH, COMMERCIAL
DIAMETER DIMENSION CONTROLS TOOL MANUFACTURE.



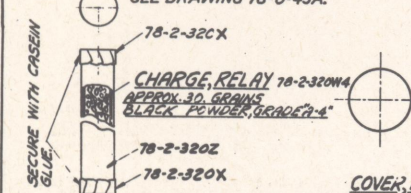
NIPPLE 78-2-320Q4
EXTRA STRONG STEEL PIPE, BLACK, COMMERCIAL



SPACER 78-2-320R1
HARD HAIR FELT
DIAMETER DIMENSIONS CONTROL TOOL MANUFACTURE



SPACER, PARACHUTE 78-2-320S4
STEEL, MILD, COLD-ROLLED, TEMPER NO. 1 (HARD),
NO. 2 (HALF-HARD), NO. 3 (QUARTER-HARD), NO. 4
(SOFT SKIN-ROLLED) OR NO. 5 (DEAD SOFT), FINISH (H/DULL)
FOR PROTECTIVE FINISH
SEE DRAWING 78-0-45A.



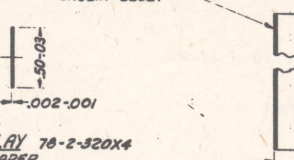
CHARGE, RELAY 78-2-320M4
APPROX. 30 GRAINS
BLACK POWDER, GRADE "A-4"

RELAY ASSEMBLY 78-2-320V
DIAMETER DIMENSION CONTROLS
TOOL MANUFACTURE.

DISC, PARACHUTE 78-2-320T
CHIPBOARD, COMMERCIAL

DIAMETER DIMENSION CONTROLS TOOL
MANUFACTURE.

PAPER SPIRALLY OR
CONVOLUTELY WOUND
2 LAYERS, GLUED WITH
CASEIN GLUE.



COVER, RELAY 78-2-320X4
ONIONSKIN PAPER

TUBE, RELAY 78-2-320Z4
PAPER, KRAFT, 60 LBS, GRADE "B"

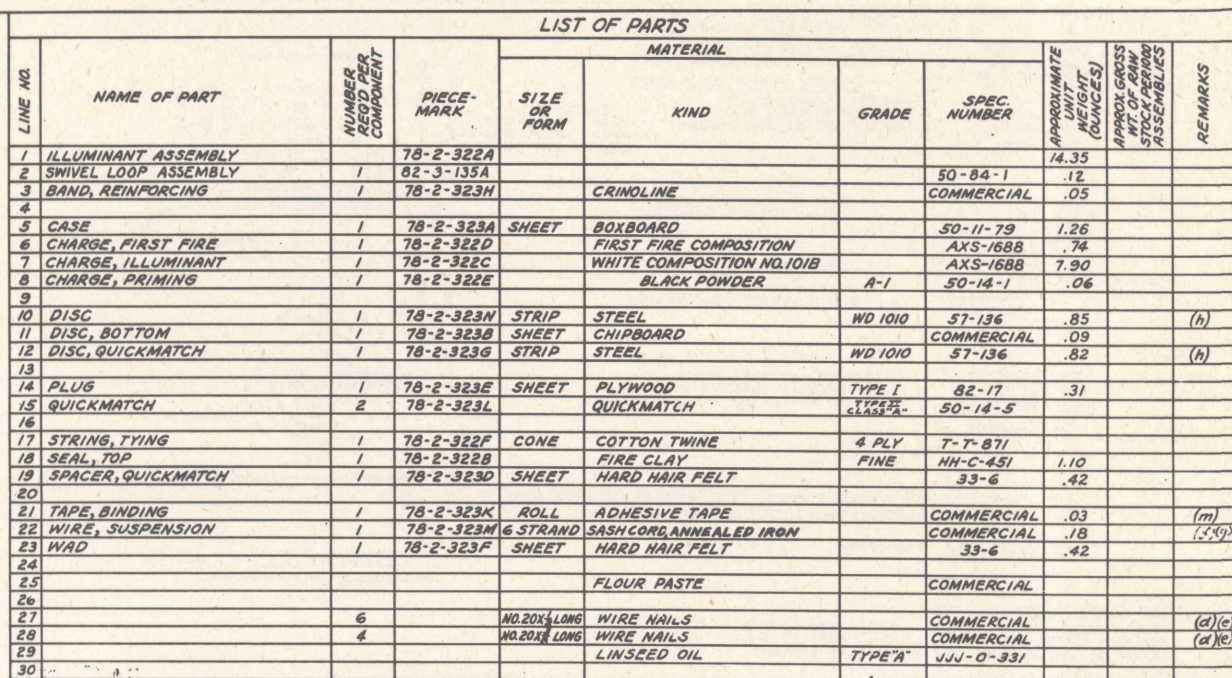
DIAMETER DIMENSION CONTROLS
TOOL MANUFACTURE.

REMOVE ALL BURRS.

SCALE, INCHES, 1/16, 1/8, 1/4, 1/2, 3/4, 1, 2

(X) TRACING WAS REVISED DURING LIMITED PROCUREMENT.

FLARE, TRIP, PARACHUTE, M48 DETAILS.				
JUNE 10, 1943				
REVISIONS	CLASS	DIVISION	DRAWING	FILE
1 8-16-43	78	2	320	
2 9-23-43				
3 12-7-43				
4 8-15-45				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED				
DECIMALS				
FRACTIONAL				
ANGULAR				
DRG. PERTAINS TO				
78-0-45				
SUBMITTED				
E.H.F. D.P.C. M.T.				
EXAMINED				
H.W. BROWN				
ORD. DEPT. U.S.A.				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE				
J. H. BROWN				
COL, ORC. DEPT. U.S.A.				
ORDNANCE DEPT. U.S.A.				



LINE NO.	LIST OF SPECIFICATIONS	SPEC. NUMBER #	REQUIRED BY	LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	AMMUNITION, EXCEPT SMALL ARMS AMM., GENERAL SPEC. FOR	50-0-1	DRG. 78-2-322	1	ASSEMBLY	78-2-322
2				2	DETAILS	78-2-323
3				3	SWIVEL LOOP ASSEMBLY	82-3-135
4						
5	BOXBOARD	50-11-79	DRG. 78-2-323			
6						
7	CLAY; FIRE	HH-C-451	DRG. 78-2-322			
8	CORD, PICTURE-WIRE	RR-C-596	DRG. 78-2-323			
9	FELT, HAIR, HARD	33-6	DRG. 78-2-323			
10						
11						
12	METALS; GENERAL SPECIFICATION FOR INSPECTION OF FINISHES, PROTECTIVE, FOR IRON AND STEEL PARTS	QQ-M-151	57-136			
13		57-0-2	DRG. 78-2-323			
14						
15	OIL; LINSEED, BOILED	JJ-J-0-331	DRG. 78-2-322			
16						
17	PAPER, GENERAL SPECIFICATIONS	UU-P-31	50-11-79			
18	P-LYWOOD, FLAT PANEL	82-17	DRG. 78-2-323			
19	POWDER, BLACK	50-14-1	DRG. 78-2-322			
20	PYROTECHNICS, GEN. SPEC. FOR WHITE & COLORED COMPOSITIONS	AXS-1688	DRG. 78-2-322			
21	QUICKMATCH	50-14-5	DRG. 78-2-323			
22	STEEL, CARBON AND ALLOY, SHEETS AND STRIPS	57-136	DRG. 78-2-323			
23						
24	TEXTILES; GENERAL SPECIFICATION, TEST METHODS	CCC-T-191	T-T-871			
25	TWINE, COTTON WRAPPING	T-T-871	DRG. 78-2-322			

(X) TRACING WAS REVISED DURING LIMITED PROCUREMENT

JUNE 10, 1943				CLASS	DIVISION	DRAWING	FILE
REVISIONS				78	2	322	
1	8-16-43			SYMBOL			
2	9-23-43						
3	10-20-43						
4	12-7-43						
	5-18-45						
DRG. PERTAINS TO							
78-0-45							

(X) TRACING WAS REVISED DURING LIMITED PROCUREMENT

JUNE 10, 1943				CLASS	DIVISION	DRAWING	FILE
REVISIONS				78	2	322	
1	8-16-43			SYMBOL			
2	9-23-43						
3	10-20-43						
4	12-7-43						
	5-18-45						
DRG. PERTAINS TO							
78-0-45							

(X) TRACING WAS REVISED DURING LIMITED PROCUREMENT

JUNE 10, 1943				CLASS	DIVISION	DRAWING	FILE
REVISIONS				78	2	322	
1	8-16-43			SYMBOL			
2	9-23-43						
3	10-20-43						
4	12-7-43						
	5-18-45						
DRG. PERTAINS TO							
78-0-45							

(X) TRACING WAS REVISED DURING LIMITED PROCUREMENT

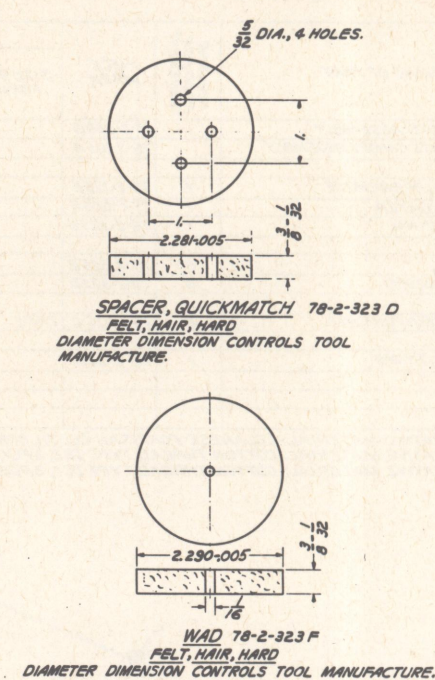
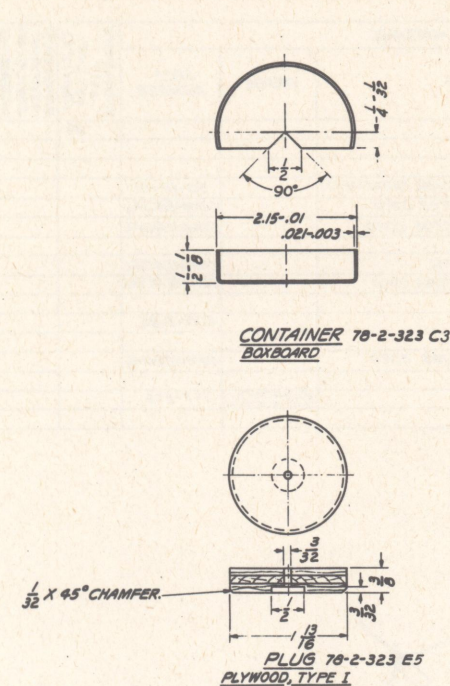
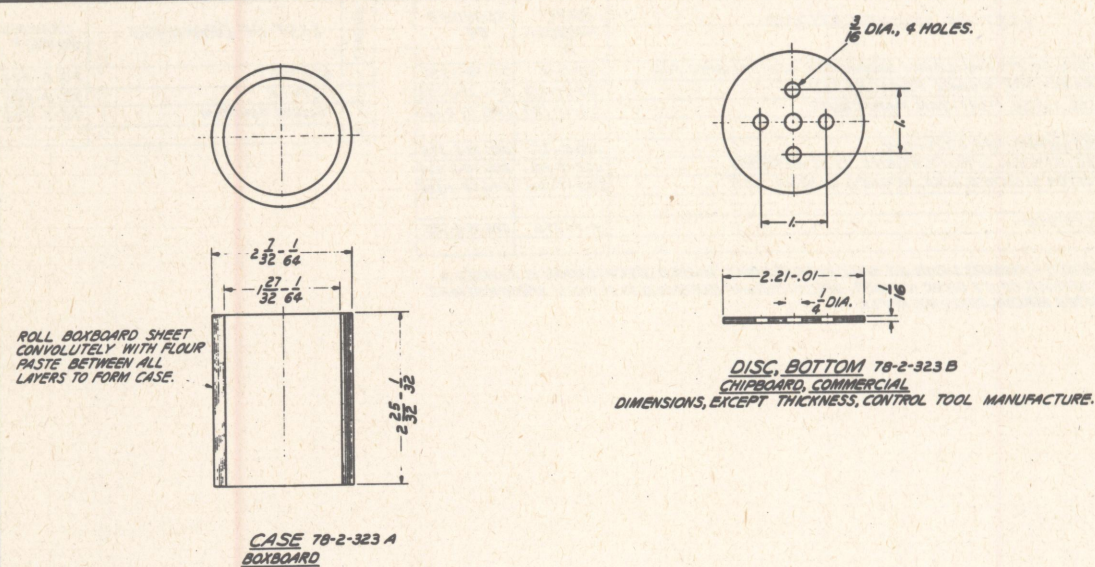
JUNE 10, 1943				CLASS	DIVISION	DRAWING	FILE
REVISIONS				78	2	322	
1	8-16-43			SYMBOL			
2	9-23-43						
3	10-20-43						
4	12-7-43						
	5-18-45						
DRG. PERTAINS TO							
78-0-45							

(X) TRACING WAS REVISED DURING LIMITED PROCUREMENT

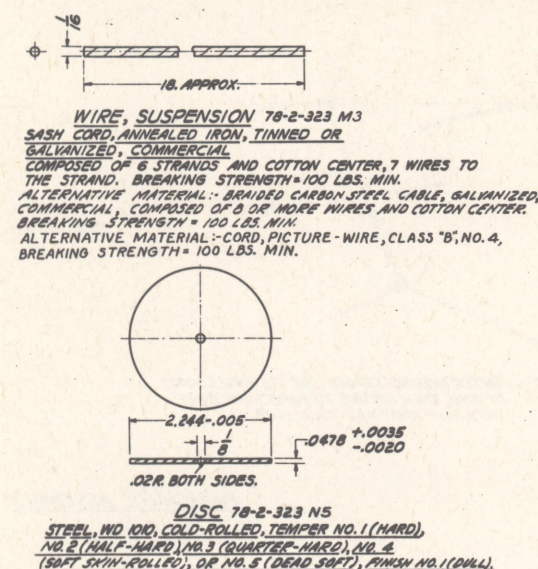
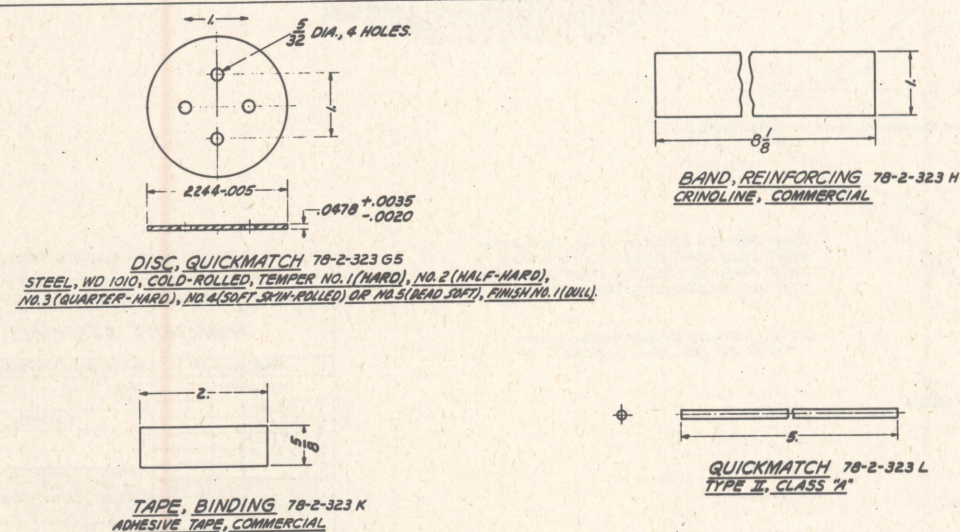
JUNE 10, 1943				CLASS	DIVISION	DRAWING	FILE
REVISIONS				78	2	322	
1	8-16-43						

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS ADDED TO THE BASIC SPECIFICATION NUMBER REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY, EXCEPT THOSE REFERRED TO IN AXS-1688.

											D	COL, ORD. DEPT. U.S.A. ORDNANCE DEPT. U. S. A.
0 1 2 3 4 5 6 7 8 9 10 11 IN.												



FOR PROTECTIVE FINISHES, SEE DRAWING 78-2-322.



REMOVE ALL BURRS.

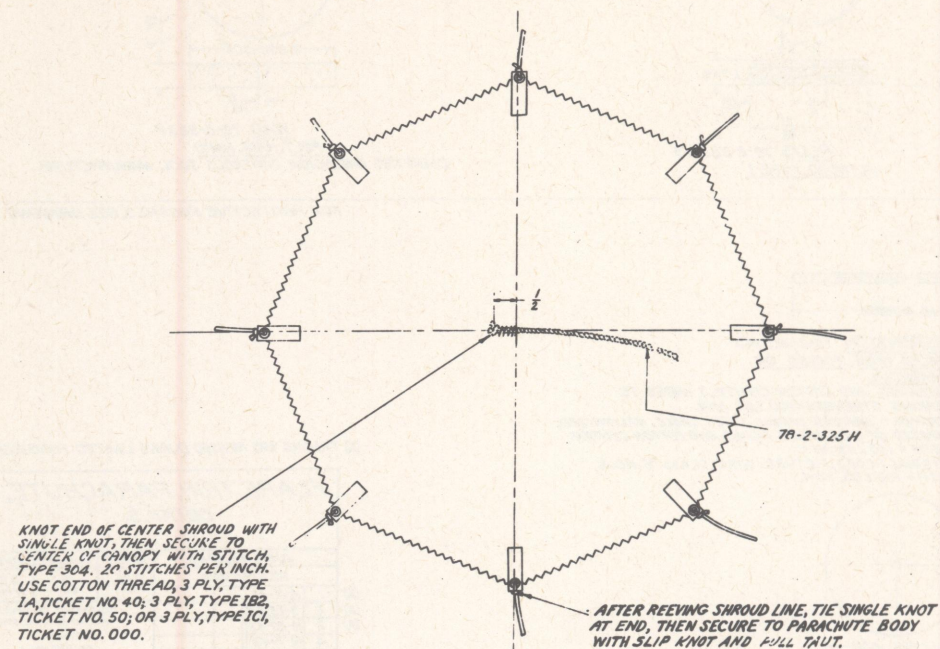
SCALE, INCHES, $\frac{3}{4}$.

(X) TRACING WAS REVISED DURING LIMITED PROCUREMENT.

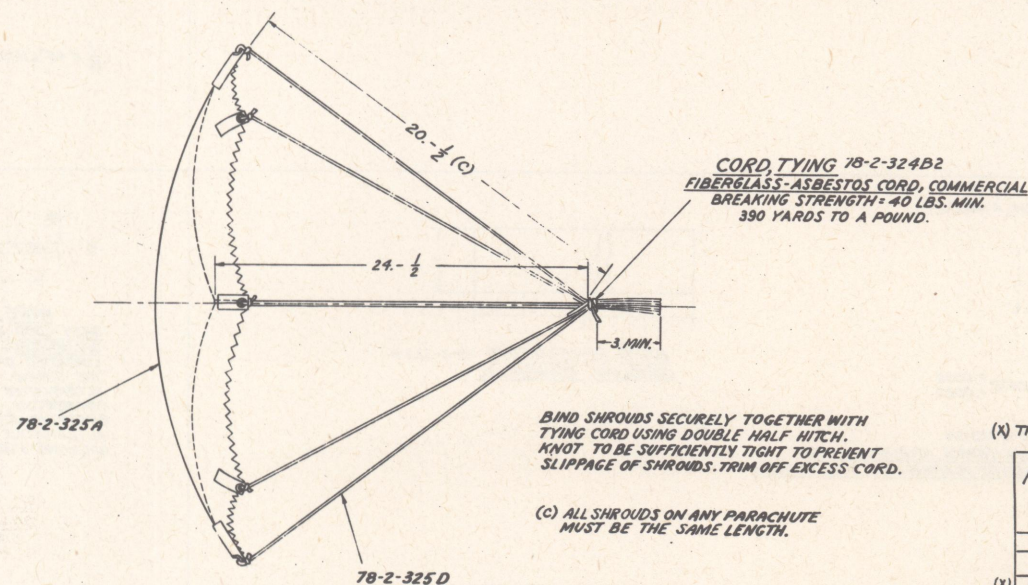
FLARE, TRIP, PARACHUTE, M48. DETAILS.				
JUNE 10, 1943				
REVISIONS				
1	8-16-43			
2	9-23-43			
3	10-20-43			
4	12-7-43			
5	8-15-45			
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED				
DECIMAL: ±				
FRACTIONAL: ±				
ANGULAR: ±				
DRG. PERTAINS TO				
78-2-322				
78-0-45				
SUBMITTED:				
EXAMINED:				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:				
ORDNANCE DEPT. U. S. A.				

LIST OF PARTS									
LINE NO.	NAME OF PART	NUMBER REQD PER COMPONENT	PIECE-MARK	MATERIAL			SPEC. NUMBER	APPROXIMATE UNIT WEIGHT (POUNCES)	REMARKS
				SIZE OR FORM	KIND	GRADE			
1	PARACHUTE ASSEMBLY		78-2-324A					.94	
2	PARACHUTE CANOPY ASSEMBLY		78-2-325A						
3									
4	CANOPY, PARACHUTE	1	78-2-325B		CLOTH, RAYON, FOR SIGNAL PARACHUTES		50-11-119		(a)
5	SHROUD, CENTER	1	78-2-325H		FIBERGLASS-ASBESTOS CORD		COMMERCIAL		
6	CORD, TYING	1	78-2-324B		FIBERGLASS-ASBESTOS CORD		COMMERCIAL		
7									
8	EYELET	8	78-2-325E		NON-FERROUS METAL		COMMERCIAL		
9	LINE, SHROUD	8	78-2-325D		FIBERGLASS-ASBESTOS CORD		COMMERCIAL		
10									
11	TAPE, REINFORCING	8	78-2-325C	TAPE	COTTON TAPE		DDD-T-86		
12									
13	THREAD, TYING	1	78-2-325F		FIBERGLASS-ASBESTOS CORD		COMMERCIAL		
14									
15					COTTON THREAD	DESIGNATION & TICKET NO. 50	V-T-276		(b)(c)
16									

(a)-ALTERNATIVE MATERIAL-CELANESE FORTISAN CLOTH, SPEC 50-11-124.
(b)-ALTERNATIVE MATERIAL-COTTON THREAD, TYPE 1B2, 3 PLY, TICKET NO. 50.
(c)-ALTERNATIVE MATERIAL-COTTON THREAD, TYPE 1C1, 3 PLY, TICKET NO. 000.



PARACHUTE ASSEMBLY 78-2-324.A4



0 3 6 9 12 15 18 21 24 27 30 33 INCHES.

LIST OF SPECIFICATIONS			SPEC. NUMBER	REQUIRED BY
LINE NO.				
1	AMMUNITION, EXCEPT SMALL ARMS AMMUNITION, GENERAL SPEC. FOR		50-0-1	DRG. 78-2-324
2	CLOTH, RAYON, FOR SIGNAL PARACHUTES		50-11-119	DRG. 78-2-325
3	CLOTH, CELANESE, FORTISAN, PARACHUTE		50-11-124	DRG. 78-2-325
4				
5	STITCHES, SEAMS, AND STITCHING		DDD-S-751	DRG. 78-2-325
6	TEXTILES, GENERAL SPECIFICATIONS, TEST METHODS		CCC-T-191	DRG. 78-2-324
7	TAPE, COTTON, BLEACHED, DYED, OR GREY, GENERAL USE		DDD-T-86	DRG. 78-2-325
8				
9	THREAD, COTTON		V-T-276	DRG. 78-2-325
10				

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

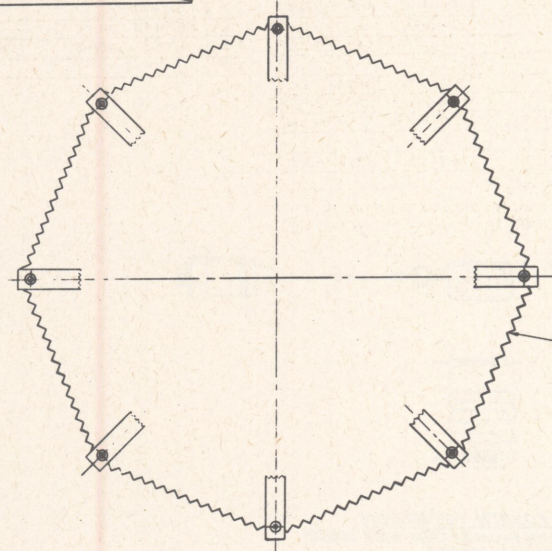
LIST OF DRAWINGS		DRAWING NUMBER
LINE NO.		
1	ASSEMBLY	78-2-324
2	DETAILS	78-2-325
3	FOLDING DIAGRAM	78-2-326
4		

(X) TRACING WAS REVISED DURING LIMITED PROCUREMENT.

FLARE, TRIP, PARACHUTE, M48.
PARACHUTE ASSEMBLY.

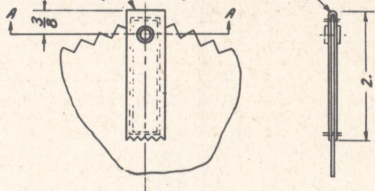
JUNE 10, 1943		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	324	
1	8-6-42				
2	9-23-43				
3	12-7-43				
4	8-15-45				
SYMBOL					
DRG. PERTAINS TO					
78-0-45					
SUBMITTED:					
EXAMINED:					
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:					
ORD. DEPT. U. S. A.					
ORDNANCE DEPT. U. S. A.					

HEAT TREATMENT AND FINAL FINISH



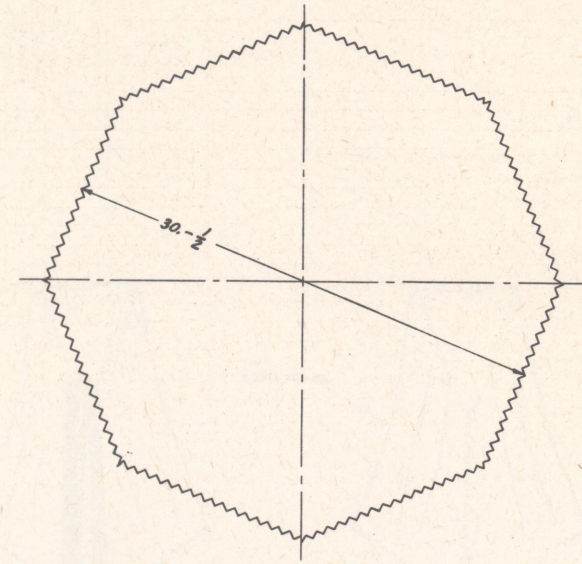
PARACHUTE CANOPY ASSEMBLY 78-2-325 A5

78-2-325C FOLD AROUND PARACHUTE BODY AND SEW, STITCH TYPE 301 OR 401, 12 STITCHES PER INCH. ALTERNATIVE: SEW WITH QUADRUPLE ZIGZAG STITCH, 22 TO 26 STITCHES PER INCH, CENTERED ON AND EXTENDING ENTIRE LENGTH OF TAPE. USE COTTON THREAD, 3 PLY, TYPE 1A, TICKET NO. 40; 3 PLY, TYPE 1B2, TICKET NO. 50; OR 3 PLY, TYPE 1C1, TICKET NO. 000.

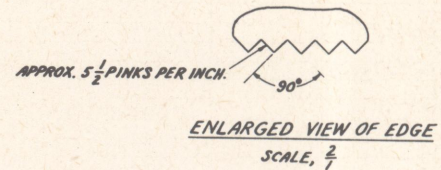


SECTION A-A

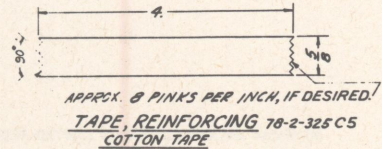
ENLARGED VIEWS OF TAPE AND EYELET ASSEMBLY



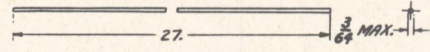
CANOPY, PARACHUTE 78-2-325 B
CLOTH, RAYON, FOR SIGNAL PARACHUTES



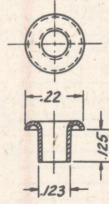
PHYSICAL PROPERTIES	
YR	
TS	
EL 2	
REL	
BR	
ROCK	



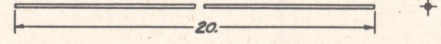
APPROX. 8 PINKS PER INCH, IF DESIRED.
TAPE, REINFORCING 78-2-325 C5
COTTON TAPE



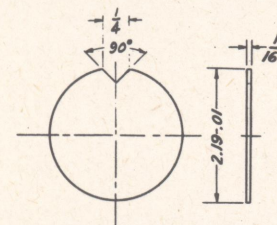
LINE, SHROUD 78-2-325 D
FIBERGLASS-ASBESTOS CORD, COMMERCIAL
BREAKING STRENGTH = 40 LBS. MIN.
390 YARDS TO A POUND.



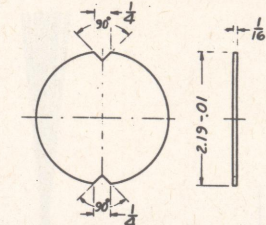
EYELET 78-2-325 E
COMMERCIAL NON-FERROUS METAL



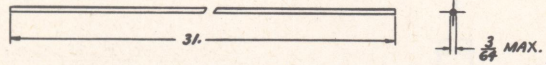
THREAD, TYING 78-2-325 F2
FIBERGLASS-ASBESTOS CORD, COMMERCIAL
BREAKING STRENGTH = 40 LBS. MIN.
390 YARDS TO A POUND.



DISC, SEPARATOR 78-2-325 G2
CHIPBOARD, COMMERCIAL
DIAMETER DIMENSION CONTROLS
TOOL MANUFACTURE.



DISC, SEPARATOR, UPPER 78-2-325 H3
CHIPBOARD, COMMERCIAL
DIAMETER DIMENSION CONTROLS TOOL MANUFACTURE.



SHROUD, CENTER 78-2-325 H
FIBERGLASS-ASBESTOS CORD, COMMERCIAL
BREAKING STRENGTH = 40 LBS. MIN.
390 YARDS TO A POUND.

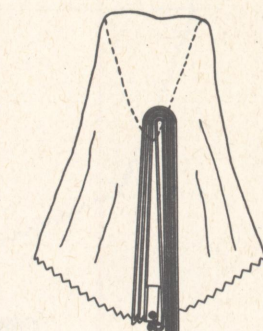
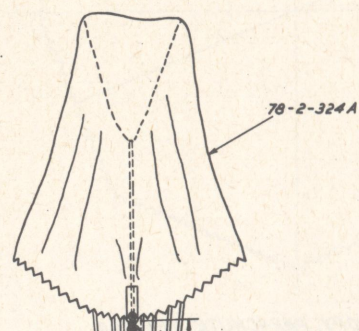
(X) TRACING WAS REVISED DURING LIMITED PROCUREMENT.

FLARE, TRIP, PARACHUTE, M48. PARACHUTE DETAILS.						
JUNE 10, 1943	CLASS	DIVISION	DRAWING FILE			
REVISIONS	78	2	325			
(X) 1 8-16-43	TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED DECIMAL 2 FRACTIONAL 2 ANGULAR 2					
(X) 2 9-28-43						
(X) 3 10-20-43						
(X) 4 12-7-43						
(X) 5 8-15-45						
DRG. PERTAINS TO						
78-2-325						
78-0-45						
SUBMITTED						
EXAMINED						
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE						
ORD. DEPT. U. S. A.						
ORD. DEPT. U. S. A.						
ORDNANCE DEPT. U. S. A.						

SCALE, INCHES, 7/8, 1/2, 1/4

HEAT TREATMENT AND FINAL FINISH

PHYSICAL PROPERTIES	
Y.P.	
T.S.	
EL. 2	
RED.	
BR.	
ROCK.	



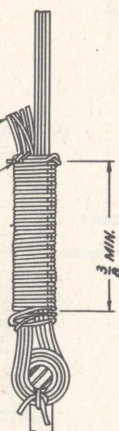
FOURTH OPERATION
FOLD DOWN FROM BOTTOM THEN INSERT
IN PARACHUTE SPACER.

SECOND OPERATION
DOUBLE BACK SHROUD LINES AS SHOWN.

THIRD OPERATION
GATHER PARACHUTE TOGETHER.

TRIM EXCESS CORD.

WRAP SHROUD LINES, TWICE, AROUND SWIVEL
LOOP OF SUSPENSION WIRE AND DRAW UP
SNUGLY LAYING THE LOOSE ENDS BACK AS
SHOWN. SERVE OR WHIP JOINT WITH TYING
THREAD 78-2-325 F BY PLACING A CLOVE
HITCH AS CLOSE TO SWIVEL LOOP
AS POSSIBLE, ALLOWING ONE STRAND TO LAY
ALONG SHROUD LINES AND THE OTHER
WRAPPED TIGHTLY ABOUT STRAND AND
SHROUD LINES. FINISH-OFF BY TYING
AN OVERHAND KNOT, USING LOOSE ENDS
OF TYING THREAD, THEN WRAP AROUND
SHROUD LINES AND TIE WITH A SQUARE
KNOT.



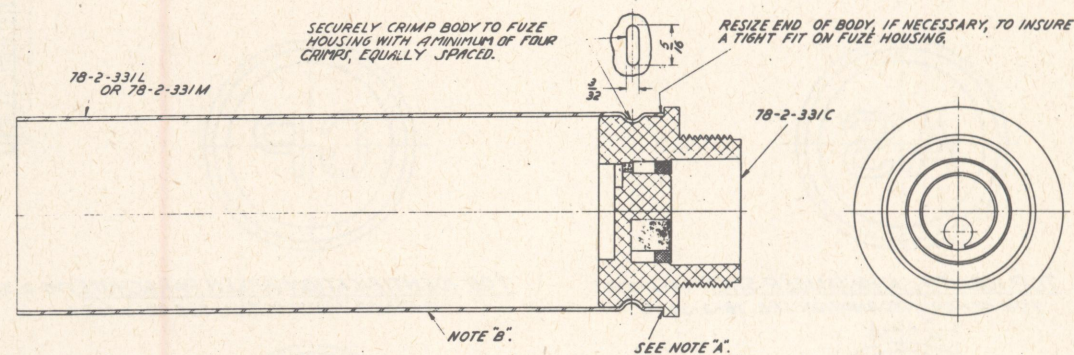
**ENLARGED VIEW SHOWING SHROUD LINES
ASSEMBLED TO FLARE ASSEMBLY SWIVEL LOOP**

FIRST OPERATION
HOLD PARACHUTE BY CROWN AND SHROUDS, THEN INSPECT TO SEE
THAT SHROUD LINES ARE NOT TANGLED AND GROUPED TOGETHER.

(X) TRACING WAS REVISED DURING LIMITED PROCUREMENT.

**FLARE, TRIP, M48.
PARACHUTE FOLDING DIAGRAM.**

JUNE 10, 1943		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	326	
(X) 1	9-23-43	TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED			
(X) 2	10-20-43				
3	12-7-43				
		DECIMAL ±			
		FRACTIONAL ±			
		ANGULAR ±			
DRG. PERTAINS TO		DEPTMAN E. G. B.	TRACER E. G. B.	ENGINEER J. M. T.	
78-2-324		CHECKER J. A. F.	G. J. K.	ENGINEER M. T.	
		SUBMITTED.			
		H. Beckman			
		COL. ORD. DEPT. U. S. A.			
		EXAMINED.			
		H. Beckman			
		ORD. DEPT. U. S. A.			
		APPROVED BY ORDER OF THE CHIEF OF ORDNANCE.			
		S. Beckman			
		COL. ORD. DEPT. U. S. A.			
D		ORDNANCE DEPT., U. S. A.			



CHARGE, INNER 78-2-33/D3
APPROX. .04 GRAM BLACK POWDER, GRADE "A-4" OR "A-5"
PRESS AT 500 LBS. TOTAL PRESSURE.

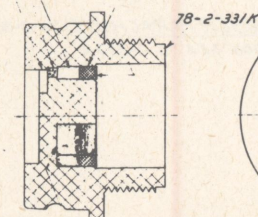
CHARGE, INTERMEDIATE 78-2-33/E3
APPROX. 4 MILLIGRAMS LOOSE BLACK POWDER, GRADE "A-4" OR "A-5"

CHARGE, FUZE 78-2-33/F1
APPROX. 12 GRAMS FUZE COMPOSITION
LEVEL FUZE CHARGE IN GROOVE, PRESS RING SEAL AND FUZE CHARGE IN SAME OPERATION UNDER TOTAL LOAD OF 15000 LBS.

78-2-33/G

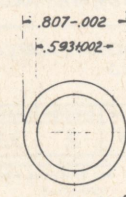
BODY ASSEMBLY
NOTES: "A" - SEAL WITH ACID-PROOF BLACK PAINT.
"B" - COAT EXTERIOR SURFACE, EXCEPT FUZE HOUSING, WITH BLUE-GRAY LACQUER ENAMEL OR BLUE-GRAY ENAMEL.

BODY ASSEMBLY	PIECEMARK
PARACHUTE	78-2-33/A3
CLUSTER	78-2-33/B3

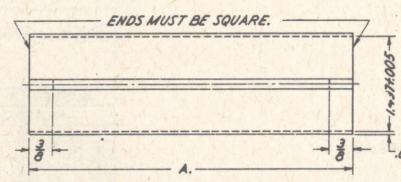


CHARGE, IGNITING 78-2-33/H3
APPROX. 19 GRAM BLACK POWDER, GRADE "A-4" OR "A-5"
PRESS AT 750 LBS. TOTAL PRESSURE.
CHARGE TO BE FLUSH WITH OR WITHIN $\frac{1}{32}$ APPROXIMATE BELOW INNER FACE.

FUZE HOUSING ASSEMBLY 78-2-33/C3



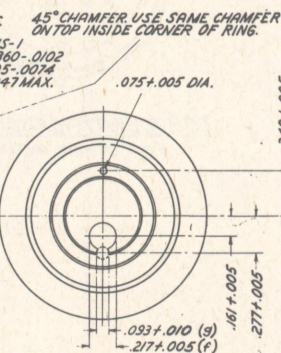
SEAL RING 78-2-33/I4
ALUMINUM-ALLOY, CONDITION "A"
FINISH 125/30 ON O.D. AND I.D.



INSIDE DIAMETER OF BODY TO BE MAINTAINED BY FILLING SEAM JOINT WITH TIN-LEAD SOLDER, CLASS "6", TO A MIN. OF $\frac{1}{32}$ FROM ENDS.

BODY
STEEL, WD1010 OR WD1020, COLD-ROLLED, TEMPER NO.3
(QUARTER-HARD), FINISH NO.1 (DULL) OR HOT-ROLLED, PICKLED.
COAT ALL SURFACES WITH PRIMER, SYNTHETIC, LACQUER RESISTING.

BODY TYPE	PIECEMARK	DIM "A"
PARACHUTE	78-2-33/L	5.05-.03
CLUSTER	78-2-33/M	4.79-.03



HOUSING, FUZE 78-2-33/K4
ALUMINUM-ALLOY, CONDITION "A"
FINISH 125/30 OTHER SURFACES AS SPECIFIED.

ENLARGED VIEW OF CRIMPING GROOVE
SCALE, $\frac{4}{1}$

LOCK SEAM, SEAL WITH ACID-PROOF BLACK PAINT, TYPE II.
THIS DIMENSION CONTROLLED BY METHOD OF MANUFACTURE.

LIST OF PARTS

LINE NO.	NAME OF PART	NUMBER REQD PER COMPONENT	PIECE-MARK	SIZE OR FORM	MATERIAL	GRADE	SPEC NUMBER	APPROXIMATE UNIT WEIGHT (POUNDS)	APPROX. GROSS WT. OF RAW STOCK PER 1000 ASSEMBLIES	REMARKS
1	BODY ASSEMBLY (PARACHUTE)		78-2-33/A							
2	BODY ASSEMBLY (CLUSTER)		78-2-33/B							
3	FUZE HOUSING ASSEMBLY		78-2-33/C							
4										
5	BODY (PARACHUTE)	1	78-2-33/L		STEEL	WD1010 OR WD1020	57-136			(b)
6	BODY (CLUSTER)	1	78-2-33/M		STEEL	WD1010 OR WD1020	57-136			(b)
7										
8	CHARGE, FUZE	1	78-2-33/F		FUZE COMPOSITION					(a)
9	CHARGE, IGNITING	1	78-2-33/H		BLACK POWDER	"A-4" OR "A-5"	JAN-P-223	.006		
10	CHARGE, INNER	1	78-2-33/D		BLACK POWDER	"A-4" OR "A-5"	JAN-P-223	.002		
11	CHARGE, INTERMEDIATE	1	78-2-33/E		BLACK POWDER	"A-4" OR "A-5"	JAN-P-223			
12										
13	HOUSING, FUZE	1	78-2-33/K	ROD	ALUMINUM ALLOY	CONDITION "T"	QQ-A-351			(d)
14	SEAL, RING	1	78-2-33/I		ALUMINUM ALL OY	CONDITION "A"	QQ-A-351			(c)
15					LACQUER ENAMEL, BLUE-GRAY	1	JAN-L-73			(c)
16					PAINT, ACID-PROOF BLACK		JAN-P-450			
17					TIN-LEAD SOLDER	CLASS "6"	QQ-S-571			
18										
19										
20					PRIMER, SYNTHETIC		JAN-P-72			

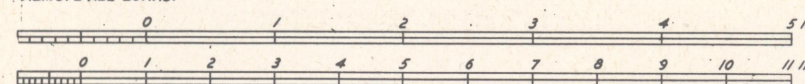
(a) FUZE COMPOSITION:-
FUZE POWDER 67%, SPEC. JAN-P-663
POTASSIUM NITRATE, CLASS B 33%, SPEC. JAN-P-156
BURNING TIME TO BE 6 SECONDS APPROX. ADJUST TO BE CONSISTENT WITH 600 FT. MIN. PROJECTION HEIGHT.
NOTE:- ALL PERCENTAGES ARE BY WEIGHT.

(b) ALTERNATIVE MATERIAL:- STEEL TUBING, WD1010 OR WD1020, TYPE I, II, III OR IV, COLD-DRAWN; FINISH-ANNEALED, SPEC. 57-180.
(c) ALTERNATIVE MATERIAL:- BLUE-GRAY ENAMEL, GRADE 1, SPEC. JAN-E-74
(d) ALTERNATIVE MATERIAL:- ROD, ALUMINUM ALLOY, CONDITION "T", SPEC. QQ-A-351.
(e) ALTERNATIVE MATERIAL:- ALUMINUM-ALLOY, CONDITION "A", SPEC. QQ-A-351.

LINE NO.	LIST OF SPECIFICATIONS	SPEC. NUMBER	REQUIRED BY
1	ALUMINUM ALLOY; BARS, RODS, SHAPES, AND WIRE	QQ-A-351	DRG. 78-2-33/1
2	AMMUNITION, EXCEPT SMALL ARMS AMM., GENERAL SPEC. FOR	50-0-1	DRG. 78-2-33/1
3	ALUMINUM-ALLOY; BARS, RODS, SHAPES, AND WIRE	QQ-A-354	DRG. 78-2-33/1
4			
5	LACQUER ENAMEL, LUSTRELESS	JAN-L-73	DRG. 78-2-33/1
6	METALS; GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	57-136
7	ENAMEL, LUSTRELESS, QUICK-DRYING, FOR	JAN-E-74	DRG. 78-2-33/1
8	PAINT; ACID-PROOF BLACK (FOR AMMUNITION)	JAN-P-450	DRG. 78-2-33/1
9	PRIMER, SYNTHETIC, LACQUER-RESISTING	JAN-P-72	DRG. 78-2-33/1
10	POTASSIUM NITRATE	JAN-P-156	DRG. 78-2-33/1
11	POWDER, BLACK	JAN-P-223	DRG. 78-2-33/1
12	POWDERS, FUZE	JAN-P-663	DRG. 78-2-33/1
13	SOLDER; TIN-LEAD	QQ-S-571	DRG. 78-2-33/1
14	STEEL, CARBON AND ALLOY; SHEETS AND STRIPS	57-136	DRG. 78-2-33/1
15	PAINTS AND RELATED MATERIALS, GENERAL SPEC. FOR	3-1	JAN-L-73
16	TUBING, ROUND, MECHANICAL AND STRUCTURAL; STEEL, CARBON AND ALLOY, ETC.	57-180	DRG. 78-2-33/1
17			
18			
19			
20			

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

REMOVE ALL BURRS.

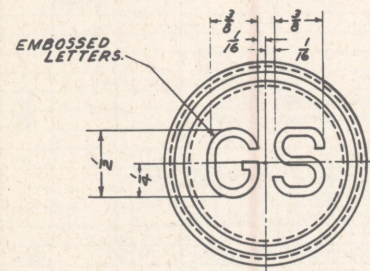


FOR USE WITH SIGNALS, GROUND MITAIB2 TO M22AIB2, INCLUSIVE, M51AIB2, AND M52AIB2.

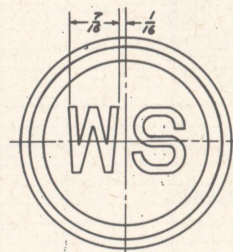
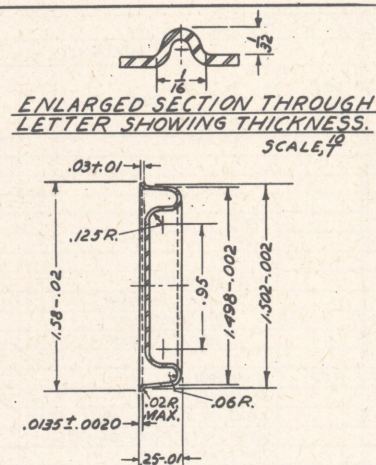
SIGNAL, GROUND, (PARACHUTE AND CLUSTER).
(FOR USE WITH GRENADE LAUNCHER, M7 AND M8) BODY ASSEMBLY AND DETAIL 5.

AUGUST 21, 1943		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	331	
1	6-29-44				
2	9-30-44				
3	8-15-45				
4	3-24-49				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED					
ORIGINAL: 2					
FRACTIONAL: 2					
ANGULAR: 2					
DRG. PERTAINS TO					
SUBMITTED					
EXAMINED					
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE					
ORDNANCE DEPT., U.S.A.					

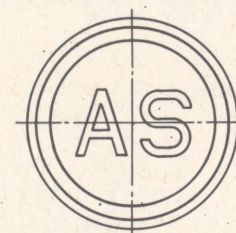
HEAT TREATMENT AND FINAL FINISH



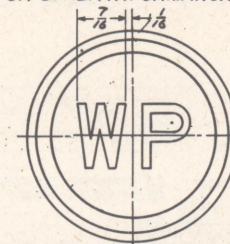
TOP IDENTIFICATION (GREEN STAR) 78-2-332 A 4
STEEL, WD1010, COLD-ROLLED, TEMPER NO. 4 (SOFT SKIN-ROLLED)
FINISH NO. 1 (DULL)



TOP IDENTIFICATION (WHITE STAR) 78-2-332 B
FOR OTHER INFORMATION SEE 78-2-332 A



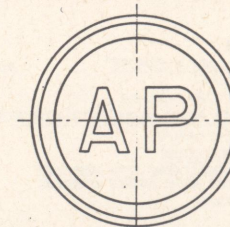
TOP IDENTIFICATION (AMBER STAR) 78-2-332 C
FOR OTHER INFORMATION SEE 78-2-332 A



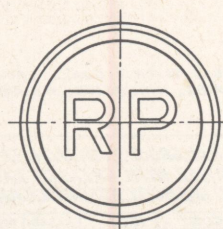
TOP IDENTIFICATION (WHITE PARACHUTE) 78-2-332 E
FOR OTHER INFORMATION SEE 78-2-332 A



TOP IDENTIFICATION (GREEN PARACHUTE) 78-2-332 D
FOR OTHER INFORMATION SEE 78-2-332 A



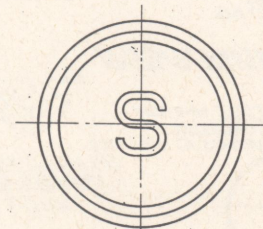
TOP IDENTIFICATION (AMBER PARACHUTE) 78-2-332 F
FOR OTHER INFORMATION SEE 78-2-332 A



TOP IDENTIFICATION (RED PARACHUTE) 78-2-332 G
FOR OTHER INFORMATION SEE 78-2-332 A



TOP IDENTIFICATION (RED STAR) 78-2-332 H
FOR OTHER INFORMATION SEE 78-2-332 A



TOP IDENTIFICATION (SMOKE SIGNAL) 78-2-332 K 2
FOR OTHER IDENTIFICATION SEE 78-2-332 A

FOR PROTECTIVE FINISHES SEE
COMPLETE ASSEMBLY DRAWING.

REMOVE ALL BURRS.

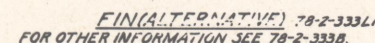
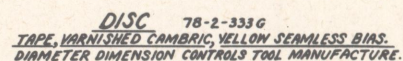
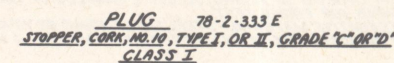
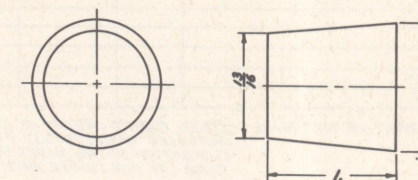
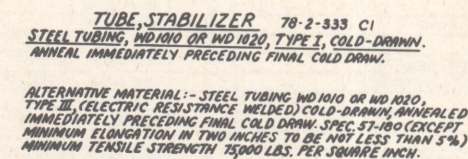
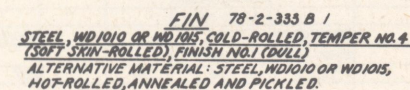
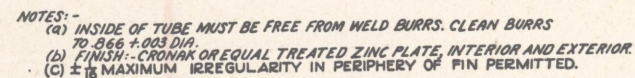
SCALE, INCHES, 3/4

PHYSICAL PROPERTIES	
Y.R.	
T.S.	
EL. 2	
RED	
BR	
ROCK	

FOR USE WITH SIGNALS, GROUND, M17A1, THROUGH
M22A1, M17A1B2 THROUGH M22A1B2, AND M51A1,
M51A1B2, M52A1, AND M52A1B2 AND SIGNALS,
GROUND, SMOKE, M62, M64, M65 AND M66

SIGNAL, GROUND, (PARACHUTE AND CLUSTER)
DETAILS

AUGUST 21, 1943		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	332	
1	10-25-43				
2	8-15-45				
3	1-10-48				
4	3-24-49				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED					
DECIMAL 2					
FRACTIONAL 2					
ANGULAR 2					
DRG. PERTAINS TO		DESIGNER	TRACER	ENGINEER	
78-0-37		CHECKER	D.E.P.	ENGINEER	
78-0-38		SAG	G.J.K.	M.T.	
78-0-54		SUBMITTED: <i>William H. Hays</i>			
78-0-55		COL. ORD. DEPT. U.S.A.			
78-0-106		EXAMINED: <i>R. B. Batty Jr.</i>			
78-0-109		L.T. COL. ORD. DEPT. U.S.A.			
		APPROVED BY ORDER OF THE CHIEF OF ORDNANCE			
		<i>A. G. Luke</i>			
		COL. ORD. DEPT. U.S.A.			
		ORDNANCE DEPT. U.S.A.			



REMOVE ALL BURRS.

LINE NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	STABILIZER ASSEMBLY	78-2-333
2	LIST OF PARTS AND LIST OF SPEC.	78-2-333
3		

FOR USE WITH SIGNALS, GROUND, M17A1B2 TO
M22A1B2, INCLUSIVE, M51A1B2 AND M52A1B2.

SIGNAL, GROUND, PARACHUTE AND CLUSTER FOR USE WITH GRENADE LAUNCHER, M1, M1 AND M8. STABILIZER ASSEMBLY AND DETAILS					
AUGUST 21, 1943			CLASS	DIVISION	DRAWING FILE NO.
REVISIONS			78	2	333
/ 10-25-43			SYMBOL		
DRG. PERTAINS TO					
			D'TTSM#		ENGINEER
			E9B		E9.B
			CHECKER		TRACER
			SAG		ZIGHER
					R/K G.D.
			SUBMITTED:-		
			Hibbenburg		
			COL. ORD. DEPT. U.S.A.		
			EXAMINED:-		
			R. B. Bentley		
			LT COL. ORD. DEPT. U.S.A.		
			APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:		
			J. C. Luke		
			COL. ORD. DEPT. U.S.A.		
D			ORDNANCE DEPT. U. S. A.		

~~066630~~

LINE NO.	NAME OF PART	NUMBER REQ'D PER COMPONENT	PIECE-MARK	LIST OF PARTS			APPROXIMATE UNIT WEIGHT (POUNCES)	APPROXIMATE WTL. OF PARTS PER 1000 ASSEMBLIES	REMARKS
				SIZE OR FORM	MATERIAL	SPEC. NUMBER			
1	STABILIZER ASSEMBLY		78-2-333A						
2									
3									
4									
5									
6	DISC	1	78-2-333 G		TAPE, VARNISHED CAMBRIC	COMMERCIAL			
7	DISC, LINING	1	78-2-333 K		ONIONSKIN PAPER	50-11-49			
8	FIN	3	78-2-333 B	SHEET OR STRIP	STEEL	WD100 OR 1020	57-136		(d)(e)
9	HOUSING, ADAPTER	1	78-2-333 F	SHEET	STEEL	WD100 TO 1035	57-136		
10	FIN (ALTERNATIVE)		78-2-333 L	SHEET OR STRIP	STEEL	WD1010 OR 1020	57-136	.70	(d)
11									
12	PLUG	1	78-2-333 E	NO. 10	STOPPER, CORK TYPE I OR II	"C" OR "B" CLASS	LLL-S-731	.11	
13									
14	TUBE, STABILIZER	1	78-2-333 C	TUBING	STEEL, COLD-DRAWN, TYPE I	WD100 OR 1020	57-180	1.97	(a)(b)(c)
15									
16					SOLDER, TIN-LEAD	65-35	COMMERCIAL		
17									
18									
19									
20									

- (a) ALTERNATIVE MATERIAL: - STEEL TUBING, WD1010 OR 1020, TYPE III, (ELECTRIC RESISTANCE WELDED) COLD-DRAWN, ANNEALED IMMEDIATELY PRECEDING FINAL COLD-DRAW, SPEC. 57-180 (EXCEPT MINIMUM ELONGATION IN TWO INCHES TO BE NOT LESS THAN 5%), MINIMUM TENSILE STRENGTH 75,000 LBS. PER SQUARE INCH.
- (b) ANNEALED IMMEDIATELY PRECEDING FINAL COLD-DRAW:
- (c) FROM EACH LOT OF TUBING, SELECT 5 SAMPLES OF TUBING, TO BE MADE UP AS STABILIZER ASSEMBLIES AND SHIP TO PROVING GROUND FOR FIRING TEST.
- (d) ALTERNATIVE MATERIAL: - STEEL SHEET, WD1010 OR WD1015, HOT ROLLED, ANNEALED AND PICKLED, SPEC. 57-136.
- (e) NOT REQUIRED WHEN FIN (ALTERNATIVE) 78-2-333 L IS USED.

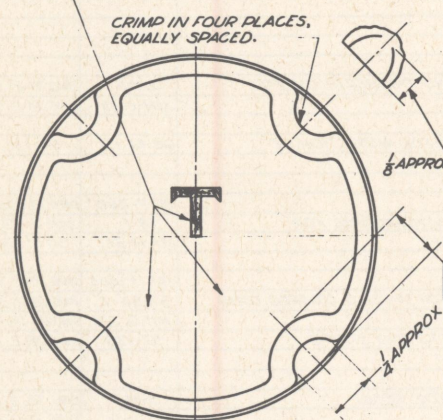
LINE NO.	LIST OF SPECIFICATIONS	SPEC. NUMBER *	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM., GENERAL SPEC. FOR	50-0-1	DRG. 78-2-333
2			
3			
4			
5	METALS; GENERAL SPECIFICATION FOR INSPECTION OF	QG-M-151	57-180
6			
7	PAPER, ONIONSKIN	50-11-49	DRG. 78-2-333
8			
9			
10			
11	STEEL, CARBON AND ALLOY, BARS	57-107	DRG. 78-2-333
12	STEEL, CARBON AND ALLOY; SHEETS AND STRIPS	57-136	DRG. 78-2-333
13	STOPPERS, CORK	LLL-S-731	DRG. 78-2-333
14			
15	TUBING, MECHANICAL OR STRUCTURAL: STEEL, CARBON AND ALLOY, ETC.	57-180	DRG. 78-2-333
16			
17			

* THIS SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY.

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED
DATE 08-01-01 BY 60322 UCBAW/SK

SIGNAL, GROUND, PARACHUTE AND CLUSTER, FOR USE WITH GRENADE LAUNCHER, M1, M7 AND M8. STABILIZER ASSEMBLY AND DETAILS LIST OF PARTS AND LIST OF SPECIFICATIONS			
AUGUST 21, 1943		CLASS	DIVISION
REVISIONS		78	2
1 10-25-43		333A	
SYMBOL			
DRG. PERTAINS TO			
ENGINEER	TRACER	ENGINEER	
E.G.B.	E.G.B.	E.G.B.	
CHECKER	CHECKER	CHECKER	
SAG	SAG	SAG	
SUBMITTED:			
R. B. Butler			
COL. ORD. DEPT. U.S.A.			
EXAMINED:			
R. B. Butler			
LT. COL. ORD. DEPT. U.S.A.			
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:			
G. C. Luke			
COL. ORD. DEPT. U.S.A.			
ORDNANCE DEPT. U. S. A.			

MARK DAUB OF LACQUER ENAMEL, THE COLOR OF THE TRACER COMPOSITION OVER T ON THE COVER DISC. [X] MARK TWO OTHER DAUBS OF LACQUER ENAMEL ON OTHER PORTIONS OF COVER DISC THE COLORS OF THE ILLUMINANT ASSEMBLY. [X] IF DESIRED, THE LETTER T ON COVER DISC MAY BE PRINTED IN COLOR OF TRACER COMPOSITION IN LIEU OF PLACING DAUB OF LACQUER OVER T. WHEN PRINTED IN THIS MANNER, THE T SHALL BE A BLOCK LETTER APPROXIMATELY 1/8 HIGH, PLACED IN THE APPROXIMATE CENTER OF THE DISC.

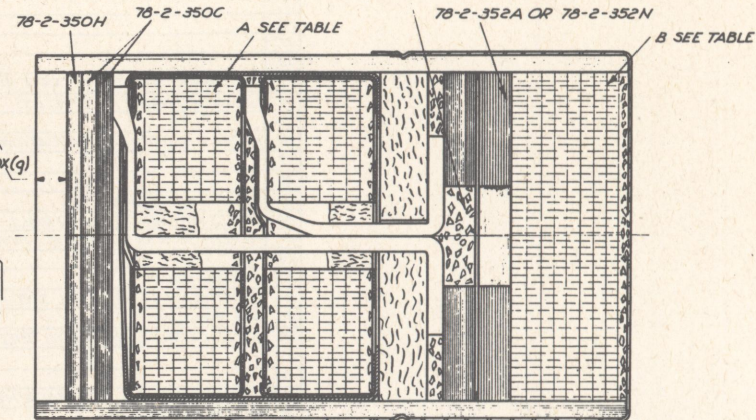


CRIMP IN FOUR PLACES,
EQUALLY SPACED.



! APPRO

1 APPROX



CHARGE, RELAY 78-2-34967
APPROX 35. GRAINS BLACK POWDER, GRADE A-3 OR A3Q.

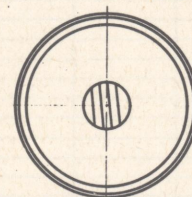
MARK EACH ILLUMINANT AND TRACER
- ASSEMBLY WITH DAUBS OF LACQUER ENAMEL
THE COLORS OF THE ILLUMINANT ASSEMBLY.

ILLUMINANT AND TRACER ASSEMBLY (a)

ILLUMINANT AND TRACER ASSEMBLY(a)		A ILLUMINANT ASSEMBLY		B TRACER ASSEMBLY	
TYPE	PIECE MARK	PIECE MARK	COLOR	PIECE MARK	COLOR
YT-RY	78-2-349A6	78-2-351A	RED-YELLOW	78-2-349N	YELLOW
GT-RR	78-2-349B6	78-2-351B	RED-RED	78-2-349M	GREEN
GT-GR	78-2-349C6	78-2-351C	GREEN-RED	78-2-349M	GREEN
RT-GG	78-2-349D6	78-2-351D	GREEN-GREEN	78-2-349L	RED
RT-RR	78-2-349E6	78-2-351E	RED-RED	78-2-349L	RED
RT-GR	78-2-349F6	78-2-351C	GREEN-RED	78-2-349L	RED

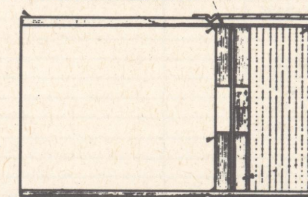
CHARGE, TRACER (c)

PIECE MARK(S)	COLOR	COMPOSITION	APPROX WT
78-2-349P7	RED	RED COMP. NO. 201D OR NO. 204	.52
78-2-349Q7	GREEN	GREEN COMP. NO. 303 OR NO. 304	.60
78-2-349R7	YELLOW	YELLOW COMP. NO. 404 OR NO. 405	.60



78-2-350A

78-2-350E
SHALL BE TIGHT FIT
IN CASE ASSEMBLY.



IF DESIRED, SECURE WITH
PETTMAN CEMENT.

78-2-352A OR
78-2-352N

MARK EACH TRACER WITH A DAUB OF LACQUER ENAMEL THE COLOR OF THE TRACER COMPOSITION.

CHARGE, PRIMING 78-2-34957
APPROX 7.6 GRAINS, BLACK POWDER, GRADE A-3

TRACER ASSEMBLY (b)

TRACER ASSY PIECE MARK (2)	TRACER COLOR	CANDLE POWER MIN	BURNING TIME	COLOR VALUE
78-2-343LT	RED	30,000	25 TO 4.0 SEC	0.38 MIN RED
78-2-349M7	GREEN	25,000	25 TO 0.0 SEC	0.36 MIN GREEN
78-2-349NE	YELLOW	30,000	202 TO 40 SEC	0.02 MIN YELLOW
				0.19 MIN RED
				0.25 MAX RED
				0.20 MIN GREEN
				0.26 MAX GREEN

NOTE:-INSERT PRIMING
CHARGE, TRACER CHARGE,
AND RELAY DISC ASSEMBLY,
THEN PRESS AT 12,000 LBS
TOTAL LOAD.

THIS DRAWING IS FOR THE FOLLOWING AIRCRAFT SIG-
NALS:- YT-RY_____AN-M53AI | RT-GG_____AN-M56AI
GT-RR_____AN-M54AI | RT-RR_____AN-M57AI
GT-GR_____AN-M55AI | RT-GR_____AN-M58AI

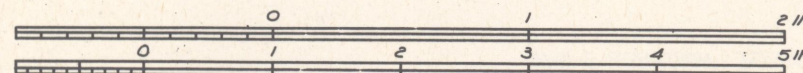
LINES NO.	LIST OF DRAWINGS	DRAWING NUMBER
1	ASSEMBLY	78-2-349
2	LIST OF SPEC & PARTS	78-2-349
3	DETAILS	78-2-350
4	ILLUMINANT ASSEMBLY	78-2-351
5	DETAILS	78-2-352

NOTICE: THIS DRAWING SHALL NOT BE USED
NOR REPRODUCED EITHER WHOLLY OR IN PART
EXCEPT WHEN AUTHORIZED IN CONNECTION
WITH UNITED STATES GOVERNMENT PRO-
CUREMENT.

SIGNAL, AIRCRAFT, TRACER,
DOUBLE STAR, ILLUMINANT
AND TRACER ASSEMBLY.

MAY 24, 1943		CLASS		DIVISION		DRAWING		FILE	
REVISONS		78		2		349			
7	10-1-45	TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED							
8	11-3-48								
		DECIMAL 1							
		FRACTIONAL 2							
		ANGULAR 2							
DRG. PERTAINS TO		D PTSMG		TRACER				ENGINE	
		MG		BDC				Hite	
		CHECKER		AC		Vid		0.5	
								JACK	
		SUBMITTED:							
		 ORD. ENG. ORD. DEPT. U. S.							
		EXAMINED:							
		 COL. ORD. DEPT. U. S.							
		APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:							
		 COL. ORD. DEPT. U. S.							
D		ORDNANCE DEPT.. U. S. A							

SUPERSEDES 78-2-349 WITH CHANGE NOVEMBER 3, 1948



LIST OF PARTS										
LINE NO.	NAME OF PART	NUMBER REQ'D PER COMPONENT	PIECE MARK	MATERIAL				APPROX UNIT WT (OUNCES)	APPROX GROSS WT OF RAW STOCK PER 100 ASSEMBLIES	REMARKS
				SIZE OR FORM	KIND	GRADE	SPEC NUMBER			
1	ILLUMINANT & TRACER ASSEMBLY, YT-RY		78-2-349A					2.21		
2	ILLUMINANT & TRACER ASSEMBLY, GT-RR		78-2-349B					2.39		
3	ILLUMINANT & TRACER ASSEMBLY, GT-GR		78-2-349C					2.46		
4	ILLUMINANT & TRACER ASSEMBLY, RT-GG		78-2-349D					2.43		
5	ILLUMINANT & TRACER ASSEMBLY, RT-RR		78-2-349E					2.29		
6	ILLUMINANT & TRACER ASSEMBLY, RT-GR		78-2-349F					2.36		
7										
8	ILLUMINANT ASSEMBLY, RED-YELLOW		78-2-351A							
9	ILLUMINANT ASSEMBLY, RED-RED		78-2-351B							
10	ILLUMINANT ASSEMBLY, GREEN-RED		78-2-351C							
11	ILLUMINANT ASSEMBLY, GREEN-GREEN		78-2-351D							
12										
13	RELAY DISC ASSEMBLY		78-2-352A					.103		
14	RELAY DISC ASSEMBLY, ALTERNATIVE		78-2-352N							(w)
15										
16	TRACER ASSEMBLY, RED		78-2-349L					1.351		
17	TRACER ASSEMBLY, GREEN		78-2-349M					1.351		
18	TRACER ASSEMBLY, YELLOW		78-2-349N					1.351		
19	TRACER CASE ASSEMBLY		78-2-350A					.546		
20										
21	CASE	1	78-2-350F	SHEET	KRAFT WRAPPING PAPER, 80 LB	A	UU-P-268	.290		
22	CHARGE, PRIMING	1	78-2-349S		BLACK POWDER	A-3	JAN-P-223	.016		
23	CHARGE, RELAY	1	78-2-349G		BLACK POWDER	A-3 OR A30	JAN-P-223	.080		
24	CHARGE, TRACER, GREEN	1	78-2-349Q		GREEN COMP, NO. 303 OR NO. 304		50-56-2	.60		
25	CHARGE, TRACER, RED	1	78-2-349P		RED COMP, NO. 201D OR NO. 204		50-56-2	.52		
26	CHARGE, TRACER, YELLOW	1	78-2-349R		YELLOW COMP, NO. 404 OR NO. 405		50-56-2	.60		
27	CUP, STRENGTHENING	1	78-2-350B	STRIP	STEEL	WD 1010 OR 1020	57-136	.256		
28										
29	DISC, COVER	1	78-2-350H	SHEET	CHIPBOARD		COMMERCIAL			
30	DISC, FILLER	(g)	78-2-350C	SHEET	CHIPBOARD	TYPE II	50-11-86	.033		
31	DISC, RELAY	1	78-2-352C	SHEET	CHIPBOARD		COMMERCIAL	.053		
32										
33	QUICKMATCH, RELAY	1	78-2-352D	STICK	QUICKMATCH	TYPE II, CLASS B	JAN-Q-378	.01		(w)
34										
35	RELAY DISC, ALTERNATIVE	1	78-2-352M	SHEET	CHIPBOARD		COMMERCIAL	.053		(w)
36										
37	WAD	1	78-2-350E	SHEET	CHIPBOARD		COMMERCIAL	.050		(u)
38										
39					CEMENT, PETTMAN		JAN-C-99			
40					FLOUR, PASTE		COMMERCIAL			
41										
42					LACQUER	CLASS A	3-158			
43					LACQUER ENAMEL, RED, GREEN, YELLOW	I	JAN-L-73			
44										
45					VARNISH, SHELLAC, ORANGE	B MED BODY	TT-V-91			(h)
46										

(g) USE DISC FILLERS IF NECESSARY TO MEET THE $\frac{1}{8}$ IN. DIMENSION BETWEEN END OF CASE AND TOP OF COVER DISC.
(h) ALTERNATIVE MATERIAL:- PHENOL-FORMALDEHYDE RESIN VARNISH (K), SPEC 3-167.
(k) NON-VOLATILE MATTER 49.5% \pm 2%.
(l) USE OF WAD IS OPTIONAL.
(m) NOT REQUIRED WHEN RELAY DISC ASSEMBLY 78-2-352A IS USED.

SUPERSEDES 78-2-349A WITH CHANGE NOVEMBER 3, 1948

LINE NO	LIST OF SPECIFICATIONS	SPEC NUMBER	REQUIRED BY
1	AMMUNITION, EXCEPT SMALL ARMS AMM, GENERAL SPEC FOR	50-0-1	DWG 78-2-349
2			
3			
4			
5			
6			
7	CHIPBOARD, PLAIN, FOR AMMUNITION CONTAINERS	50-11-86	DWG 78-2-350
8	CEMENT, PETTMAN	JAN-C-99	DWG 78-2-349
9			
10			
11			
12			
13	LACQUER, CELLULOSE NITRATE, AND THINNER (CLEAR, ETC.)	3-158	DWG 78-2-350
14	LACQUER ENAMEL, LUSTRELESS	JAN-L-73	DWG 78-2-349
15			
16	METALS, GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	57-136
17			
18			
19	PAPER; KRAFT, WRAPPING	UU-P-268	DWG 78-2-350
20	PAINTS AND RELATED MATERIALS, GENERAL SPEC FOR	3-1	JAN-L-73
21	PAPER; GENERAL SPECIFICATIONS	UU-P-31	50-11-86
22			
23	POWDER, BLACK	JAN-P-223	DWG 78-2-349
24	PYROTECHNICS; GENERAL SPEC FOR WHITE & COLORED COMP	50-56-2	DWG 78-2-349
25	QUICKMATCH	JAN-Q-378	DWG 78-2-352
26	STEEL, CARBON AND ALLOY; SHEETS AND STRIPS	57-136	DWG 78-2-350
27			
28			
29	VARNISH, PHENOL FORMALDEHYDE RESIN	3-167	DWG 78-2-349
30	VARNISH; SHELLAC	TT-V-91	DWG 78-2-349

* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS AFFIXED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY, EXCEPT THOSE REFERRED TO IN 50-56-2.

THIS DRAWING IS FOR THE FOLLOWING AIRCRAFT SIGNALS:-

YT-RY.....AN-M53AI RT-GG.....AN-M56AI
GT-RR.....AN-M54AI RT-RR.....AN-M57AI
GT-GR.....AN-M55AI RT-GR.....AN-M58AI

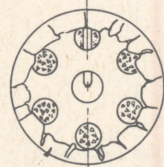
SIGNAL, AIRCRAFT, TRACER, DOUBLE STAR, ILLUMINANT & TRACER ASSEMBLY. LIST OF PARTS & LIST OF SPECIFICATIONS.

MAY 24, 1943		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	349A	
6	10-1-45				
7	11-3-48				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED					
DECIMAL \pm					
FRACTIONAL \pm					
ANGULAR \pm					
DRG. PERTAINS TO		CHKD	TRACER	REG	ENG. NEER
78-2-349		ACJ			ENG. NEER
SUBMITTED:					
ORD. ENG., ORD. DEPT. U.S.A.					
EXAMINED:					
COL., ORD. DEPT. U.S.A.					
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:					
COL., ORD. DEPT. U.S.A.					
ORDNANCE DEPT., U.S.A.					

NOTICE:-THIS DRAWING SHALL NOT BE USED NOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

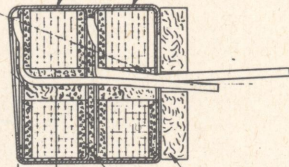
PLUG 78-2-351E
COTTON, COMMERCIAL.

UPPER STAR(b), SEE TABLE.
LOWER STAR(c), SEE TABLE.



78-2-352K
FOLD OVER BOTH
ENDS AS SHOWN.

1/4" APPROX
(BOTH ENDS)



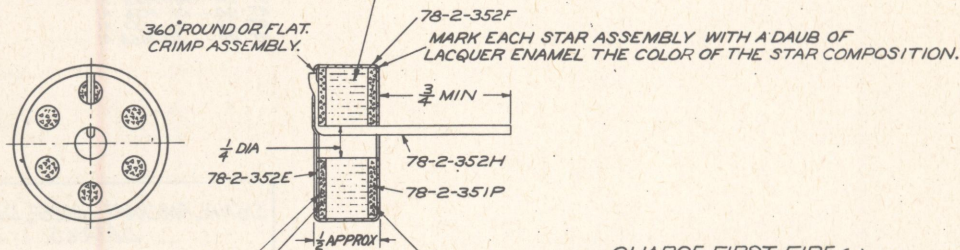
78-2-352G (MAY BE OMITTED IF DESIRED).

CHARGE, DIVIDING 78-2-351F7
APPROX 24 GRAINS (1.56 GRAMS) BLACK POWDER
GRADE "A-3".

NOTE: MARK EACH ILLUMINANT ASSEMBLY
WITH DAUBS OF LACQUER ENAMEL THE
COLORS OF THE ILLUMINANT ASSEMBLY.

CHARGE STAR (c)
PRESS AT 5000 LBS. TOTAL LOAD.

(c) PIECE MARK	COLOR	COMPOSITION	APPROX WT. OZ.
78-2-351L7	RED	RED COMP, NO. 201 OR NO. 202A	.49
78-2-351M7	GREEN	GREEN COMP, NO. 303 OR NO. 305	.52
78-2-351N7	YELLOW	YELLOW COMP, NO. 404 OR NO. 407	.48



CHARGE, PRIMING 78-2-351P7
APPROX 4.5 GRAINS BLACK POWDER, GRADE "A-3"
PRESS AT 5000 LBS. TOTAL LOAD.

STAR ASSEMBLY (d)

(d) STAR ASSEMBLY	STAR	CANDLE POWER	BURNING TIME	COLOR VALUE
PIECE MARK	COLOR	MIN.	SEC.	MIN.
78-2-351G7	RED	48,000 MIN	3 TO 4.5 SEC.	0.38 RED
78-2-351H7	GREEN	20,000 MIN	3 TO 4.5 SEC.	0.34 GREEN
78-2-351K5	YELLOW	36,000 MIN	3 TO 4.5 SEC.	0.043 YELLOW

ILLUMINANT ASSEMBLY (a)

(a) ILLUMINANT ASSEMBLY	(b) UPPER STAR	(c) LOWER STAR
PIECE MARK	PIECE MARK	COLOR
78-2-351A	78-2-351G	RED
78-2-351B	78-2-351G	RED
78-2-351C	78-2-351H	GREEN
78-2-351D	78-2-351H	GREEN

CHARGE, FIRST FIRE (w)
PRESS AT 5000 LB. TOTAL LOAD.
(USE OF FIRST FIRE CHARGE IS OPTIONAL)

STAR ASSEMBLY	(w) FIRST FIRE CHARGE
COLOR	PIECE MARK
RED	78-2-351R7
GREEN	78-2-351S7
YELLOW	78-2-351T7

LIST OF PARTS

LINE NO.	NAME OF PART	NUMBER REQUIRED PER COMPONENT	PIECE MARK	SIZE OR FORM	MATERIAL	GRADE	SPEC NUMBER	APPROXIMATE UNIT WEIGHT (OUNCES)	APPROX GROSS WT OF RAW STOCK PER 1000 ASSEMBLIES	REMARKS
1	ILLUMINANT ASSEMBLY, RED-YELLOW		78-2-351A					1.00		
2	ILLUMINANT ASSEMBLY, RED-RED		78-2-351B					1.08		
3	ILLUMINANT ASSEMBLY, GREEN-RED		78-2-351C					1.15		
4	ILLUMINANT ASSEMBLY, GREEN-GREEN		78-2-351D					1.22		
5										
6	STAR ASSEMBLY, RED	(n)	78-2-351G					.51		
7	STAR ASSEMBLY, GREEN	(n)	78-2-351H					.58		
8	STAR ASSEMBLY, YELLOW	(n)	78-2-351K					.43		
9										
10	CHARGE, DIVIDING	1	78-2-351F		BLACK POWDER	A-3	JAN-P-223	.05		
11	CHARGE, FIRST FIRE, RED	(x)	78-2-351R		RED COMPOSITION, NO. 201D OR NO. 204		50-56-2	.02		
12	CHARGE, FIRST FIRE, GREEN	(x)	78-2-351S		GREEN COMPOSITION, NO. 303 OR NO. 304		50-56-2	.02		
13	CHARGE, FIRST FIRE, YELLOW	(x)	78-2-351T		YELLOW COMPOSITION, NO. 404 OR NO. 405		50-56-2	.02		
14	CHARGE, PRIMING	4	78-2-351P		BLACK POWDER	A-3	JAN-P-223	.01		
15	CHARGE, STAR, RED	(n)	78-2-351L		RED COMPOSITION, NO. 201 OR NO. 202A		50-56-2	.49		
16	CHARGE, STAR, GREEN	(n)	78-2-351M		GREEN COMPOSITION, NO. 303 OR NO. 305		50-56-2	.52		
17	CHARGE, STAR, YELLOW	(n)	78-2-351N		YELLOW COMPOSITION, NO. 404 OR NO. 407		50-56-2	.48		
18	CUP, STAR	2	78-2-352F	SHEET	ALUMINUM	SOFT	QQ-A-561	.048		
19										
20	DISC, STAR	2	78-2-352E	SHEET	ALUMINUM	HALF-HARD	QQ-A-561	.014		
21										
22	QUICKMATCH, STAR	2	78-2-352H		TYPE II	CLASS "B"	JAN-Q-378	.01		
23										
24	PLUG	2	78-2-351E		COTTON		COMMERCIAL			(P)
25										
26	TUBE, STAR	1	78-2-352K	120 LB	KRAFT PAPER	"B"	ULI-P-268			
27										
28	WAD, CUSHIONING, STAR	1	78-2-352G	ROLL	PRESSED FELT	NO. 10	8-15	.06		(Y)
29					GLUE	II	3-102			
30					LACQUER ENAMEL, RED, GREEN & YELLOW	I	JAN-L-73			

(n) - ONE FOR TWO COLOR SIGNALS OR TWO FOR SINGLE COLOR SIGNALS.

(p) - MOISTURE CONTENT - 3% MAX.

(x) - TWO FOR TWO COLOR SIGNALS OR FOUR FOR SINGLE COLOR SIGNALS.

(y) - USE OF WAD IS OPTIONAL.

LIST OF DRAWINGS

LINE NO.	DRAWING NUMBER
1	ILLUMINANT ASSEMBLY 78-2-351
2	LIST OF SPECIFICATIONS 78-2-351A
3	DETAILS 78-2-352
4	ILLUMINANT AND TRACER ASSEM. 78-2-349

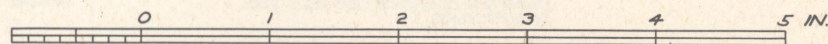
THIS DRAWING IS FOR THE FOLLOWING AIRCRAFT SIGNALS:-

YT-RY.....	AN-M53A1	RT-GG.....	AN-M56A1
GT-RR.....	AN-M54A1	RT-RR.....	AN-M57A1
GT-GR.....	AN-M55A1	RT-GR.....	AN-M58A1

SIGNAL, AIRCRAFT, TRACER, DOUBLE STAR ILLUMINANT ASSEMBLY AND DETAILS

MAY 24, 1943	CLASS	DIVISION	DRAWING	FILE
REVISIONS	78	2	351	
7 10-1-43				
8 5-5-49				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED				
DECIMAL 2 FRACTIONAL 1 ANGULAR 1				
DTSMAN RHD FCB				
CHECKER RCD				
SUBMITTED:				
ORD. ENG. ORD. DEPT. U.S.A.				
EXAMINED:				
COL., ORD. DEPT. U.S.A.				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:				
COL., ORD. DEPT. U.S.A.				
ORDNANCE DEPT. U.S.A.				

SUPERSEDES 78-2-351 WITHOUT CHANGE MAY 5, 1949



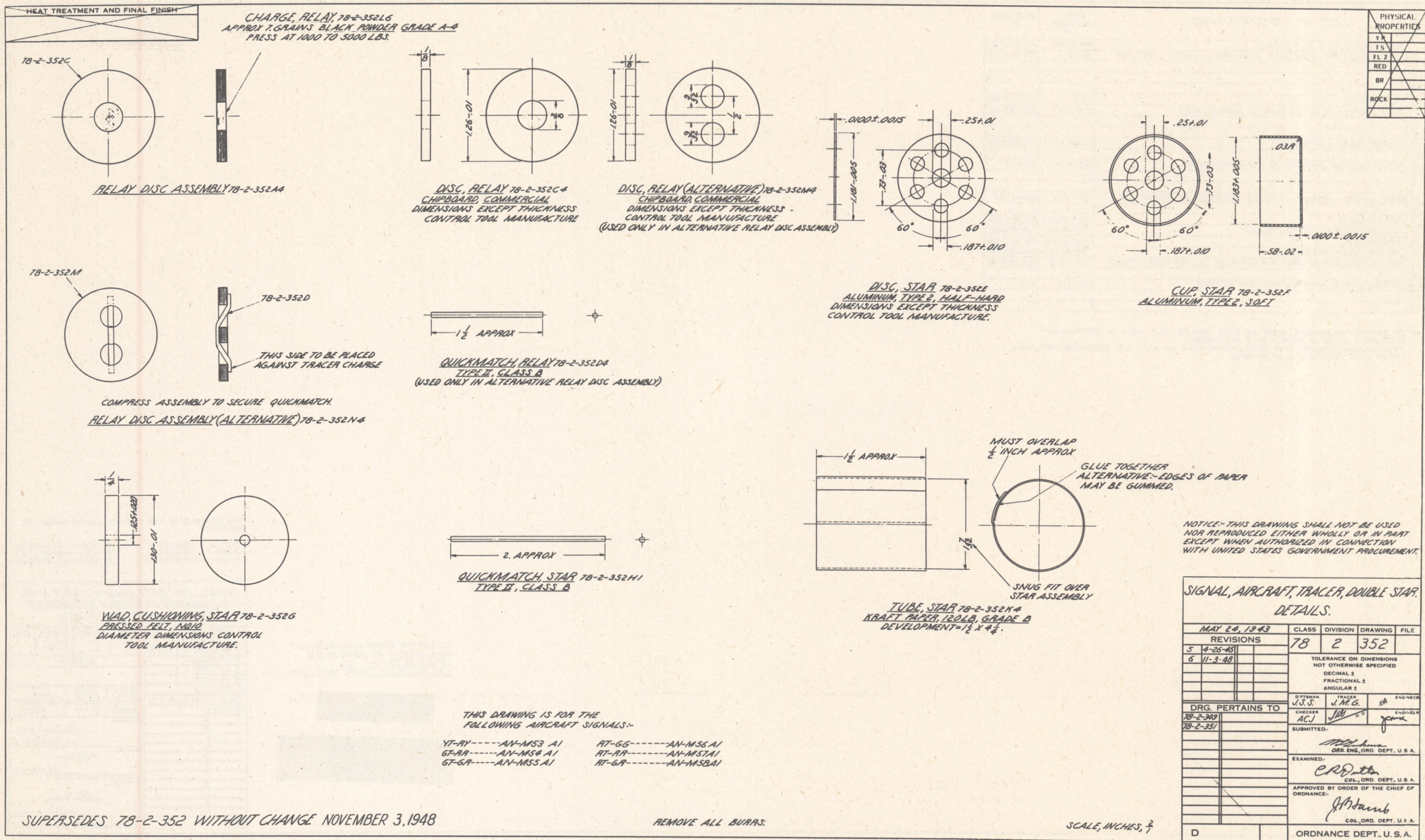
LINE NO.	LIST OF SPECIFICATIONS	SPEC. NUMBER	REQUIRED BY
1	ALUMINUM, PLATES AND SHEETS	QQ-A-561	DRG. 78-E-352
2	AMMUNITION, EXCEPT SMALL ARMS AMMUNITION, GENERAL SPEC. FOR	50-0-1	DRG. 78-E-351
3			
4			
5			
6	FELT, PRESSED	8-15	DRG. 78-E-352
7	GLUE (FOR USE IN THE LOADING OF AMMUNITION)	3-102	DRG. 78-E-352
8			
9			
10	LACQUER, ENAMEL, LUSTRELESS	JAN-L-73	DRG. 78-E-351
11			
12	METALS, GENERAL SPECIFICATION FOR INSPECTION OF	QQ-M-151	QQ-A-561
13			
14			
15	PAINT, VARNISH, LACQUER, AND RELATED MATERIALS, METHODS OF, ETC	TT-P-141	JAN-L-73
16			
17	POWDER, BLACK	JAN-P-223	DRG. 78-E-351
18	PAPER, GENERAL SPECIFICATIONS	UU-P-31	UU-P-268
19	QUICKMATCH	JAN-Q-378	DRG. 78-E-352
20	PAPER, KRAFT, WRAPPING	UU-P-268	DRG. 78-E-352
21	PYROTECHNICS, GENERAL SPEC. FOR WHITE AND COLORED COMPOSITIONS	50-56-2	DRG. 78-E-351
22			
23	TEXTILES, GENERAL SPECIFICATIONS, TEST METHODS	CCG-T-191	8-15
24			
25			

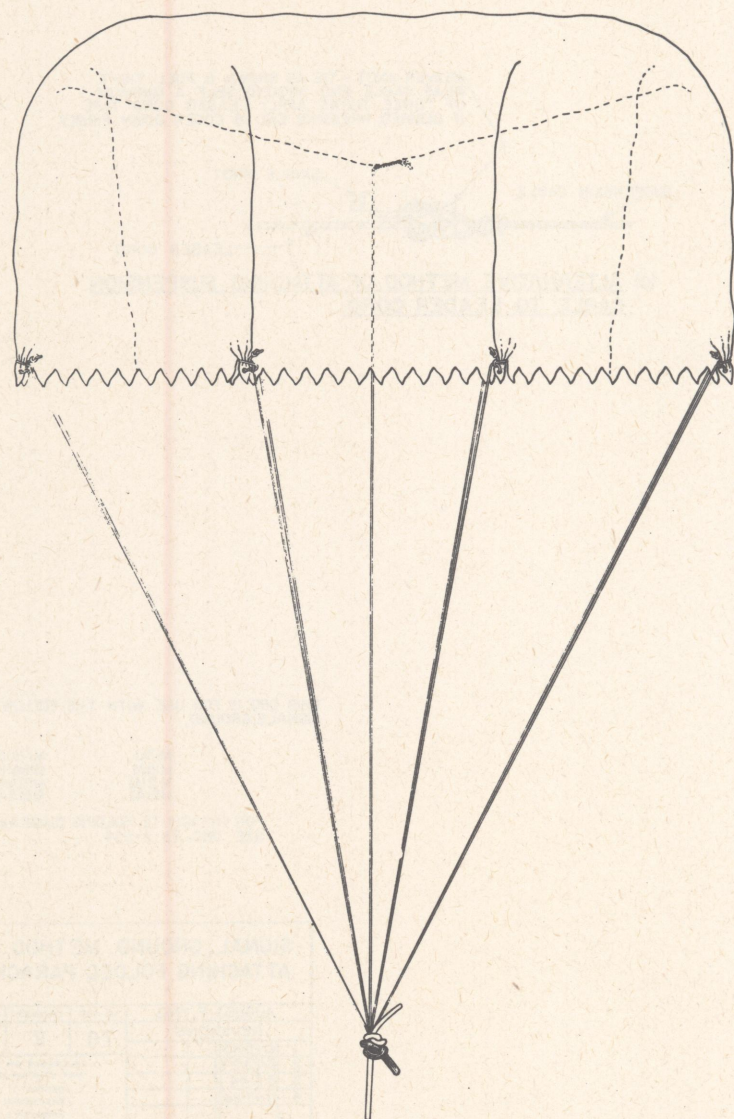
* THE SPECIFICATION NUMBERS SHOWN ARE BASIC NUMBERS ONLY. WHEN A SPECIFICATION IS REVISED A LETTER IS APPENDED TO ITS BASIC NUMBER. SPECIFICATIONS REFERRED TO IN THESE SPECIFICATIONS AND NOT LISTED HEREON, SHALL NOT APPLY, EXCEPT THOSE REFERRED TO IN 50-96-2.

CLASSIFICATION CHANGED TO
UNCLASSIFIED BY AUTHORITY
OF O.G. NO. 29730 BY
M. H. HANSEN DATE SEPT 13, 1949

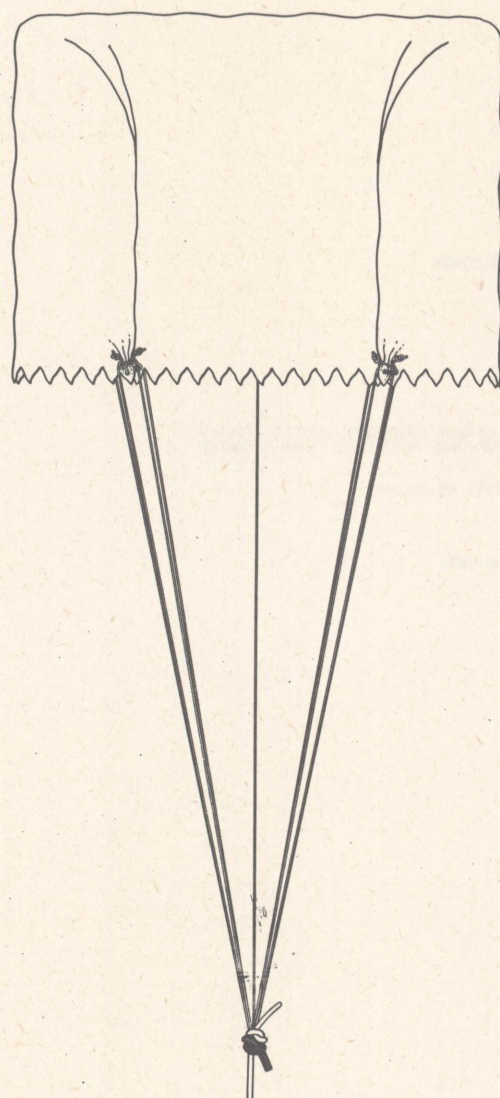
THIS DRAWING IS FOR THE FOLLOWING AIRCRAFT SIGNALS:-
YT-RY---AN-M53 AI RT-GG---AN-M56 AI
GT-RR---AN-M54 AI RT-RR---AN-M57 AI
GT-GR---AN-M55 AI RT-GR---AN-M58 AI

SIGNAL, AIRCRAFT, TRACER, DOUBLE STAR, ILLUMINANT ASSEMBLY AND DETAILS. LIST OF SPECIFICATIONS.			
MAY 24, 1943		CLASS	DIVISION
REVISIONS		78	2
1 8-31-43	6 9-13-49	351A	
2 1-12-44		SYMBOL	
3 5-11-44			
4 4-26-45			
5 10-1-45			
DRG. PERTAINS TO		OFFICIAL	TRACER
78-E-351		RHD	RHD
		CHIEF	CHIEF
		M.T.	M.T.
		SUBMITTED: M. H. Hansen	
		COL., ORDN. DEPT., U. S. A.	
		EXAMINED: H. B. Beckman	
		COL., ORDN. DEPT., U. S. A.	
		APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:	
		J. B. McKinley	
		COL., ORDN. DEPT., U. S. A.	
D		ORDNANCE DEPT., U. S. A.	





FIRST OPERATION
LAY PARACHUTE FLAT ON TABLE.
FOLD PARACHUTE SO THAT SHROUD
LINES LAY ABOVE EACH OTHER.



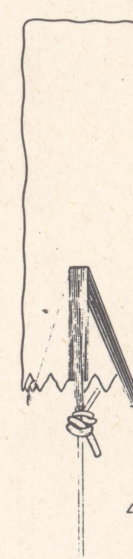
SECOND OPERATION
FOLD EDGES OF PARACHUTE
TO CENTER, AS SHOWN.



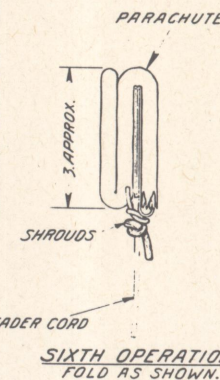
THIRD OPERATION
FOLD EDGES OF PARACHUTE
TO CENTER AGAIN, AS SHOWN.



FOURTH OPERATION
FOLD LEFT EDGE ON TOP OF
RIGHT EDGE, AS SHOWN.



FIFTH OPERATION
FOLD SHROUD LINES ATOP EACH
OTHER APPROX. 3 OR 4 TIMES &
PLACE ON TOP OF PARACHUTE
FOLD LEADER CORD TO EXTEND
BELOW PARACHUTE, AS SHOWN.



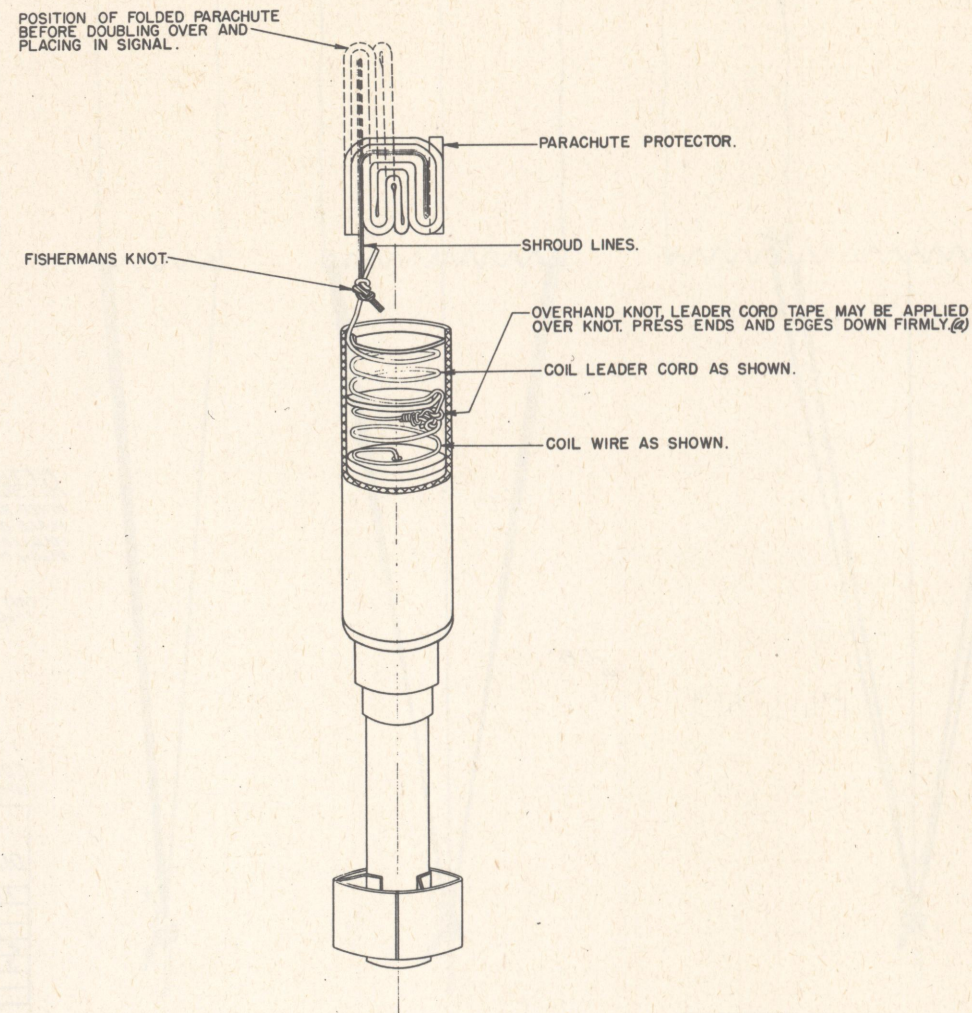
SIXTH OPERATION
FOLD AS SHOWN.

THIS DRAWING IS FOR USE WITH THE
FOLLOWING SIGNALS:-
SIGNAL, GROUND,
M17A1 M17A1B2
M19A1 M19A1B2
M21A1 M21A1B2
M51A1 M51A1B2

SUPERSEDES OLD TRACING 78-2-354
UNDER REVISION DATE OF AUGUST 5, 1944.

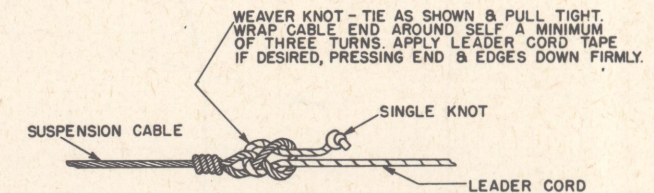
AUGUST 2, 1943				CLASS	DIVISION	DRAWING	FILE
REVISIONS				78	2	354	
1	5-23-44			TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED			
2	8-5-44			DECIMAL 1			
3	11-17-44			FRACTIONAL 1			
				ANGULAR 1			
DRG. PERTAINS TO				T.W.R.	T.W.R.	CE	ENGINEER
CHECKER				NWF			PRINCIPAL ENG. NEER
SUBMITTED				L.T. GALT, ORG. DEPT. U.S.A.			
EXAMINED				W. Beck, 11-6-44			
				ORD. DEPT. U.S.A.			
				APPROVED BY ORDER OF THE CHIEF OF ORDNANCE			
				C. S. Reed, 6-2-44			
				COL., ORG. DEPT. U.S.A.			
D				ORDNANCE DEPT. U.S.A.			

METHOD OF FOLDING PARACHUTE AS SHOWN ON THIS
DRAWING IS ADVISORY, SUBJECT TO SATISFACTORY ASSEMBLY
AND REQUIREMENTS OF SPEC. 50-54-5.



METHOD OF ASSEMBLING FOLDED PARACHUTE TO PARACHUTE TYPE GROUND SIGNALS.

METHOD OF PACKING PARACHUTE AS SHOWN ON THIS DRAWING IS ADVISORY, SUBJECT TO SATISFACTORY ASSEMBLY AND REQUIREMENTS OF SPECIFICATION 50-54-5.



(a) ALTERNATIVE METHOD OF ATTACHING SUSPENSION CABLE TO LEADER CORD.

THIS DRG. IS FOR USE WITH THE FOLLOWING SIGNALS:-
SIGNALS, GROUND,

MI7AI
MI9AI
M 21AI
MS1AI

MI7AIB2
MI9AIB2
M21AIB2
MS1AIB2

FOR PARACHUTE FOLDING DIAGRAM,
SEE DRG. 78-2-354.

SIGNAL, GROUND. METHOD OF ATTACHING FOLDED PARACHUTE.

AUGUST 2, 1943		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	355	
1	10-25-43	TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED			
2	5-23-44	DECIMAL 1			
3	8-5-44	FRACTIONAL 1			
4	11-17-44	ANGULAR 1			
DRG. PERTAINS TO		DESIGNER	TRACER	CHECKER	ENGINEER
		ALM	DPC	AME	MT
		SUBMITTED: <i>M. L. Luke</i>			
		COL., ORD DEPT. U.S.A.			
		EXAMINED: <i>R. b. Butts, Jr.</i>			
		LT. COL., ORD DEPT. U.S.A.			
		APPROVED BY ORDER OF THE CHIEF OF ORDNANCE: <i>J. L. Luke</i>			
		COL., ORD DEPT. U.S.A.			
D		ORDNANCE DEPT., U.S.A.			

LIST OF PARTS									
LINE NO.	NAME OF PART	NUMBER REQD PER COMPONENT	PIECE-MARK	MATERIAL				APPROXIMATE UNIT WEIGHT (OUNCES)	REMARKS
				SIZE OR FORM	KIND	GRADE	SPEC. NUMBER		
1	SMOKE PELLET ASSEMBLY, RED		78-2-506A					0.7	
2	SMOKE PELLET ASSEMBLY, YELLOW		78-2-506C					0.7	
3	SMOKE PELLET ASSEMBLY, GREEN		78-2-506D					0.7	
4	SMOKE PELLET ASSEMBLY, VIOLET		78-2-506E					0.7	
5	CHARGE, IGNITION	1	78-2-506N	SLURRY	IGNITION COMPOSITION			0.01	(a)
6	CHARGE, PRIMING	1	78-2-506M		BLACK POWDER	A-300R/A-3-A	JAN-P-223	0.02	
7	CHARGE, SMOKE PELLET, RED	1	78-2-506F		RED SMOKE COMPOSITION			0.58	(b)
8	CHARGE, SMOKE PELLET, YELLOW	1	78-2-506H		YELLOW SMOKE COMPOSITION			0.58	(d)
9	CHARGE, SMOKE PELLET, GREEN	1	78-2-506K		GREEN SMOKE COMPOSITION			0.58	(c)
10	CHARGE, SMOKE PELLET, VIOLET	1	78-2-506L		VIOLET SMOKE COMPOSITION			0.58	(f)
11	CUP	1	78-2-306A	SHEET	ALUMINUM	TYPE 2, SOFT	QQ-A-561	0.13	(n)
12	DISC	1	78-2-306B	SHEET	ALUMINUM	TYPE 2, HALF-HARD	QQ-A-561	0.02	(n)
13					MAGNESIUM CARBONATE	LIGHT	COMMERCIAL		
14									
15									
16									
17									
18									

(a) IGNITION COMPOSITION:-

DISSOLVE 4 GRAMS OF 5-6 SEC. NITROCELLULOSE, SPEC. JAN-P-244, GRADE A, TYPE II, IN 125 CC. ACETONE, GRADE A, SPEC. O-A-51. ADD 30 GRAMS OF FUZE POWDER, TYPE I, SPEC. 50-14-6, AND MAKE A UNIFORM SLURRY.

(b) RED SMOKE COMPOSITION:- (c)

RED DYE (n) 41.0% SPEC. 96-111-66.
 POTASSIUM CHLORATE (R) 33.0% JAN-P-150
 SUGAR (m) 23.0% SPEC. JUJ-S-791.
 DIATOMACEOUS EARTH 3.0% SPEC. 4-504.

(d) YELLOW SMOKE COMPOSITION:- (g)

YELLOW DYE (n) 33.0% SPEC. 96-111-68.
 POTASSIUM CHLORATE (R) 32.0% SPEC. JAN-P-150
 DIATOMACEOUS EARTH 2.0% SPEC. 4-504.
 SODIUM BICARBONATE 4.0% SPEC. O-S-576.
 SUGAR (m) 29.0% SPEC. JUJ-S-791.

(e) GREEN SMOKE COMPOSITION (j)

GREEN DYE (n) 40.0% SPEC. 96-111-64.
 POTASSIUM CHLORATE (R) 28.5% SPEC. JAN-P-150
 SUGAR (m) 25.5% SPEC. JUJ-S-791.
 DIATOMACEOUS EARTH 2.0% SPEC. 4-504.
 SODIUM BICARBONATE 4.0% SPEC. O-S-576.

(f) VIOLET SMOKE COMPOSITION (i)

VIOLET DYE (n) 44.0% SPEC. 96-111-81.
 POTASSIUM CHLORATE (R) 32.0% SPEC. JAN-P-150
 SUGAR (m) 22.25% SPEC. JUJ-S-791.
 DIATOMACEOUS EARTH 1.75% SPEC. 4-504.

(g) MIX TREATED DIE DIATOMACEOUS EARTH AND SODIUM BICARBONATE, IF USED, ADD PREPARED SUGAR AND MIX INTIMATELY. ADD POTASSIUM CHLORATE (TREATED) AND MIX UNIFORMLY.

(h) TREAT DYE WITH 4% BY WEIGHT PARAFFIN OIL (k).

(l) A UNIFORM MIXTURE OF POTASSIUM CHLORATE, GRADE II CLASS 2, SPEC. JAN-P-150, AND 3% BY WEIGHT MAGNESIUM CARBONATE, LIGHT, COMMERCIAL. PASS THROUGH A 30 MESH SIEVE.

(m) A UNIFORM MIXTURE OF SUGAR, TYPE I CONFECTIONER'S POWDERED, SPEC. JUJ-S-791 AND 3% BY WEIGHT MAGNESIUM CARBONATE, LIGHT, COMMERCIAL. PASS THROUGH A 30 MESH SIEVE.

(n) PARAFFIN OIL, PHYSICAL PROPERTIES:-

SPECIFIC GRAVITY 28 TO 32 A.P.I.
 FLASH POINT 320°F MIN.
 FIRE POINT 365°F MIN.
 POUR POINT 25°F AND ABOVE.
 VISCOSITY 70 TO 75 AT 100°F.
 COLOR 13 N.P.A.

TEXACO CORVIS OIL HAS BEEN FOUND TO MEET ABOVE REQUIREMENTS.

(n) THE SIX .187+0.010 HOLES LOCATED ON .877-0.030 DIA. SHALL BE OMITTED.

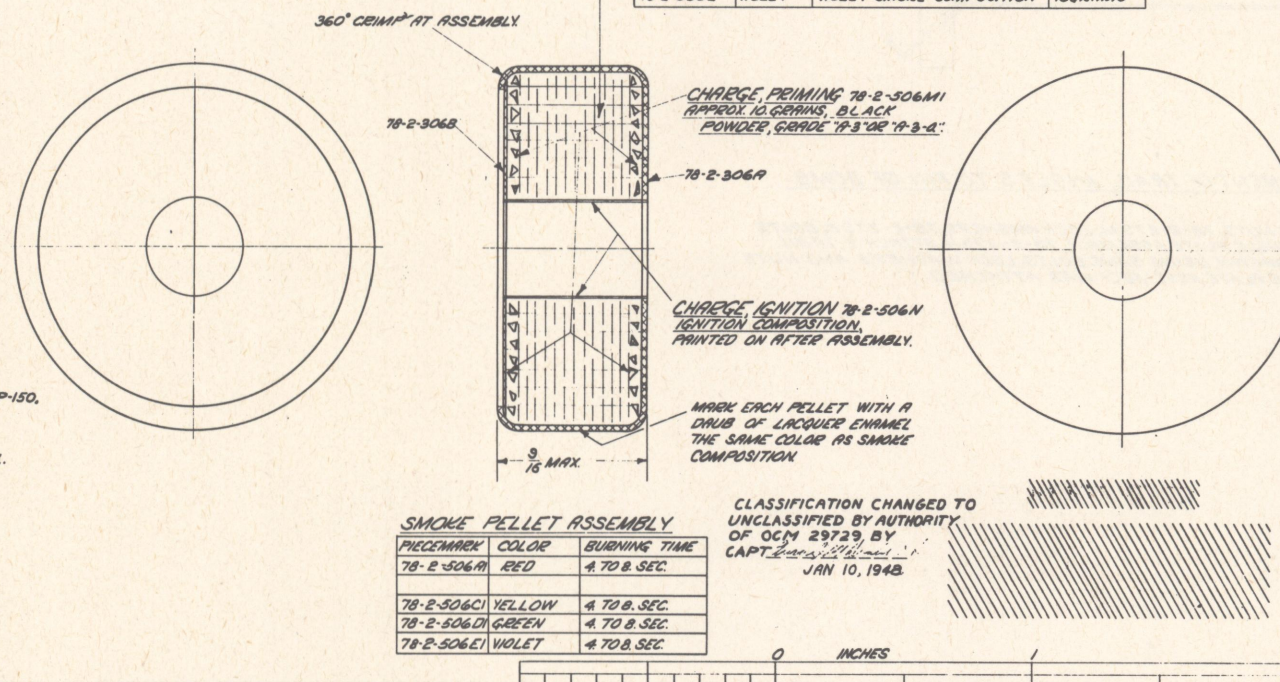
CHARGE, SMOKE PELLET
 PRESS AT 5000 LBS. TOTAL PRESSURE.

PIECE-MARK	COLOR	COMPOSITION	APPROX. WT.
78-2-506F	RED	RED SMOKE COMPOSITION	16 GRAMS
78-2-506H	YELLOW	YELLOW SMOKE COMPOSITION	16 GRAMS
78-2-506K	GREEN	GREEN SMOKE COMPOSITION	16 GRAMS
78-2-506L	VIOLET	VIOLET SMOKE COMPOSITION	16 GRAMS

THIS DRAWING APPLIES TO THE FOLLOWING

SIGNALS, GROUND:
 RED SMOKE M62

YELLOW SMOKE M64
 GREEN SMOKE M65
 VIOLET SMOKE M66

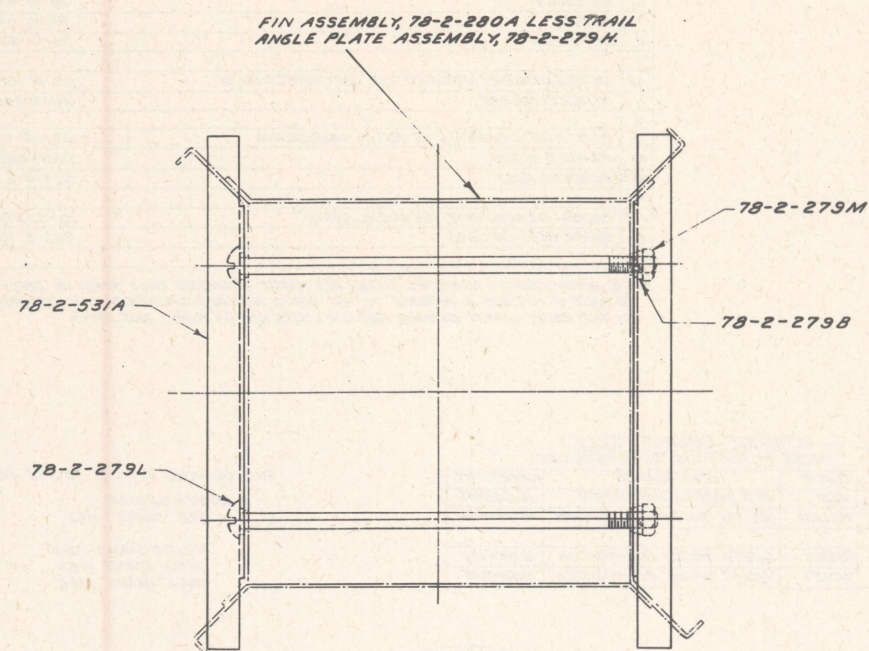


SMOKE PELLET ASSEMBLY

PIECE-MARK	COLOR	BURNING TIME
78-2-506A	RED	4 TO 8 SEC.
78-2-506C	YELLOW	4 TO 8 SEC.
78-2-506D	GREEN	4 TO 8 SEC.
78-2-506E	VIOLET	4 TO 8 SEC.

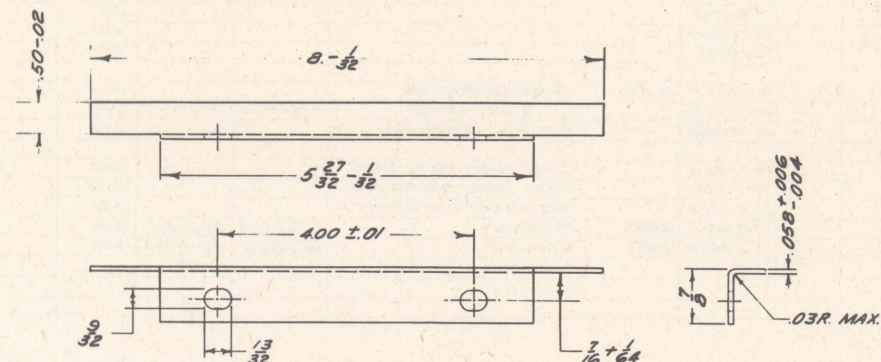
SIGNAL, GROUND, SMOKE
 DETAILS.

MAY 10, 1945				
REVISIONS	CLASS	DIVISION	DRAWING	FILE
1 8-15-45	78	E	506	
2 1-10-48				
TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED				
DECIMAL ±				
FRACTIONAL ±				
ANGULAR ±				
DRG. PERTAINS TO				
78-0-106				
SUBMITTED				
J. H. [signature]				
EXAMINED				
J. H. [signature]				
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE				
C. H. [signature]				
ORDNANCE DEPT., U. S. A.				



VIEW SHOWING ATTACHMENT OF TRAIL ANGLES TO FIN OF BOMB

TO MODIFY BOMB, REMOVE NUTS, 78-2-279M, LOCK WASHERS, 78-2-279B, BOLTS 78-2-279L AND TRAIL ANGLE PLATE ASSEMBLY 78-2-279H. ATTACH 2 TRAIL ANGLES, 78-2-531A AS SHOWN, USING SAME BOLTS, LOCK WASHERS AND NUTS WITH WHICH TRAIL ANGLE PLATE ASSEMBLY WAS ATTACHED.



ANGLE, TRAIL 78-2-531A
STEEL, WILDON, HOT-ROLLED AND PICKLED OR COLD-ROLLED,
TEMPER NO. 3 (QUARTER-HARD) FINISH NO. 1 (DULL)
COAT ALL SURFACES FIRST WITH PRIMER, SYNTHETIC,
LACQUER-RESISTING, THEN WITH BLUE-GRAY LACQUER
ENAMEL, GRADE I OR BLUE-GRAY ENAMEL, GRADE I.

**BOMB, PHOTOFLASH, 100LB, AN-M46
TRAIL ANGLE, DETAILS**

AUGUST 15, 1945		CLASS	DIVISION	DRAWING	FILE
REVISIONS		78	2	531	
		TOLERANCE ON DIMENSIONS NOT OTHERWISE SPECIFIED			
		DECIMAL \pm			
		FRACTIONAL \pm			
		ANGULAR \pm			
DRG. PERTAINS TO		DFTSMAN	TRACER	ENGINEER	
78-0-33		W.F.C.	W.F.C.	HEAD ENGINEER	
		CHECKER	G.W.R.	G.W.R.	
		SUBMITTED:			
		Angallagh			
		LT. COL., ORD. DEPT. U.S.A.			
		EXAMINED:			
		H. Butman			
		ORD. DEPT. U.S.A.			
		APPROVED BY ORDER OF THE CHIEF OF ORDNANCE:			
		C.S. Reed			
		COL., ORD. DEPT. U.S.A.			
D		ORDNANCE DEPT., U.S.A.			